

## Writing Instrument And Quality Of Handwriting

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### ABSTRACT

Do the types of writing instrument have any influence over writer's handwriting? Can quality of handwriting be changed by changing the writing instrument? An answer to these questions the present study was undertaken. The experiment was conducted upon 48 girls and 48 boys i.e. 96 students of standard VIII in an upper primary school. The specimens of handwriting were obtained from the students by utilizing four kinds of writing instrument i.e. (1) Pencil, (2) Ball point pen, (3) Gel pen and (4) Fountain pen. The subject matter of writing was a story in English language. The obtained writing specimens were scored by using three point rating scale based on various aspects of handwriting quality. The results of analysis revealed the relationship between writing instrument and quality of handwriting were (1) Girls scored significantly higher than those of boys so far as handwriting scores were concerned. (2) Gel Pen and Ball Point Pen were found superior to Fountain Pen so far as girls' quality of handwritings was concerned. In present study none of the writing instrument was found superior to others so far as boys' quality of handwritings were concerned.

**Key words:** Writing instrument, Source of Light, Hand-writing .

### 1.0 Preface

We all have experience of writing since our childhood. The form of that writing was almost the scribbles. As we grow, we are taught in our formal education system to write properly. From there importance of writing increases. As time passes, we come to know that our handwriting expresses

ourselves i.e. our inner self in the form of understanding, feelings, emotions, attitudes etc. Good handwriting catches the attention of a reader and compels him/her to read what is written.

As our examinational system being examination oriented the students' achievement in various school

subjects are mainly measured by the mean of written expression i.e. by paper pencil tests. We find a large variety of students' handwriting. Some students have very good handwriting; some have average handwriting; while some have illegible handwriting. As a teacher we explain the importance of good handwriting and advise to improve handwriting to students. But many times we unnoticed that which types of writing instrument are used by the students.

Do the types of writing instrument have any influence over writer's handwriting? Can quality of handwriting be changed by changing the writing instrument? An answer to these questions the present study was decided to be undertaken.

## 2.0 Objectives Of The Study

Objectives of the present study were ...

- 2.1 To examine the effect of writing instrument upon quality of students' handwriting.
- 2.2 To examine if gender has any effect upon quality of students' handwriting.

## 3.0 Hypotheses Of The Study

### 3.1 Research hypotheses

1. There will be significant difference among mean handwriting scores of students' according to the types of instrument.
2. There will be significant difference between mean handwriting scores of students' according to the gender.

To test these research hypotheses statistically, it were converted into null hypotheses.

### 3.2 Null Hypotheses Of The Study

1. There will be no significant difference among handwriting scores of students according to the types of instrument.
2. There will be no significant difference between mean handwriting scores of students according to the gender.

## 4.0 Variables Of The Study

### 4.1 Independent Variable.

Writing instruments were independent variable. It consisted of four levels: (1) Pencil, (2) Ball point pen, (3) Gel pen, (4) Fountain pen.

## 4.2 Dependent Variable.

Handwriting score of the quality of students' handwriting was taken as dependent variable.

## 4.3 Controlled Variable.

The factors which had been controlled were: (1) Standard, (2) Language and Subject matter, (3) Quality of Paper for writing, (4) Source of Light, (5) Seating arrangement, (7) Institutional Environment and (8) Testing Procedure.

## 4.4 Intervening Variable.

These individual differences might affect the dependent variable: (1) Grip of the instrument, (2) Sitting position, (3) Position of paper during writing, (4) Mental-emotional condition, (5) Writing speed and (6) Expectations for good handwriting from teachers and parent.

## 5.0 Operational Definitions Of The Terms

**5.1 Writing instrument.** There are so many different kinds of writing instrument available in the market. Regarding to this research writing instrument means plug pencil, ball point pen, gel pen and fountain pen.

**5.2 Handwriting Score.** The term

handwriting score means the total of points indicating the quality of the handwriting. The samples of students' handwriting were analyzed in these aspects such as linearity: alignment, size of letters, space between letters, space between words, space between lines, formation of letters, neatness and legibility. Three point rating score were given to each aspect i.e. for maintained=3, maintained up to some extent=2 and not maintained=1. Thus, the minimum handwriting score of any student can be 8 and the maximum handwriting score of any students can be 24.

## 5.3 Language and Subject matter.

In this research language means English language. The handwriting of English language was analyzed and for that subject matter i.e. a story or an event were given to write.

## 5.4 Quality of Paper for Writing.

Paper of writing was purchased of good quality. Executive Bond Paper of A4 size having 75gsm was purchased. Paper was as blank sheet without lining.

**5.5 Source of Light:** Natural as well as artificial light (tube light) in the classroom were considered as source of light.

**5.6 Three Point Rating Score.** To measure handwriting quality of students' handwriting a handwriting tool in the form of three point rating scale had been prepared on the basis of components of good handwriting. There were seven components or aspects of good handwriting i.e. linearity, size of letters, space between letters, space between lines, space between words, formation of letters, neatness and legibility. For each aspect three-rate will be given i.e. for maintained=3, maintained up to some extent=2 and not maintained=1 score will be allotted.

**5.7 Seating Arrangement.** No special seating arrangement was made. Students were sitting as usually as they were sitting in their classroom on benches.

## **6.0 Population And Sample Of The Study**

The population of the study was delimited to the students of standard VIII from upper primary school of Rajkot

city, studying in academic year 2012-13. The present study being experimental in nature the sample was selected purposively. Two schools were selected for experiment and replication purpose.

The schools included were: (1) Shri Mahatma Gandhi School, (2) Shri Pathak School. From each school a class of standard VIII was randomly selected. All the students of selected class compromised the sample. Thus the sample size was 48 students by following cluster method of sampling for both the schools. From each class four groups was randomly formed for providing the treatment of independent variable i.e. type of writing instrument.

## **7.0 Selection Of Writing Instrument And Writing Sheet**

As the independent variable were types of writing instrument. These four instruments were bought in enough quantity i.e. fifteen-fifteen each. They were:(1) Plug Pencil of 0.7mm point of Camlin Company, (2) Ball Point Pen of 0.5mm point of Cello Company, (3) Fountain Pen of 0.5mm point of Montex Company , and (4) Gel Pen of 0.5mm point of Cell Company . For collecting

writing specimens from students, Executive Bond paper of A4 size having 75 gsm were purchased. Paper was as blank sheet without lining.

### **8.0 Selection Of Content/Subject Matter For Writing**

Only handwriting quality of English language was to be tested. Therefore one story was selected as per students' cognitive level which was as 'A Wonderful Story of Friendship'. The statistic of the story was as: 3 paragraphs, 13 lines, 183 words and 772 characters.

### **9.0 Construction of Handwriting Evaluation Tool**

The researcher had decided to form a Handwriting Evaluation Tool which measure handwriting quality of students' handwriting. The tool developed was in the form of Three Point Rating Scale on the basis of components of good handwriting. Eight components are: (1) Linearity: Alignment, (2) Size of Letters, (3) Space between Letters, (4) Space between Words, (5) Space between Lines, (6)

Formation of Letters, (7) Neatness and (8) Legibility. For level Maintained = 3, Maintained up to some extent = 2, Not maintained = 1 score are allotted. Obtained score range for any student would be 8 to 24 score. Higher the score superior the handwriting quality.

### **10.0 Experimental Research Design**

As independent variable of the study was writing instrument and having four types, a Rotation Groups Design of Quasi experimental design was selected. Four groups of students from the sample were formed by randomization. Each group was received each level of treatment (types of instrument) one after another. Every students wrote with one type of instrument and next day they changed writing instrument, thus on the fourth day the researcher got four types of handwriting specimens by four types of writing instrument from each student. After each treatment phase, collected handwriting sample were evaluated. Experiment was conducted on girls students were as replication study was done on boys students.

## 11.0 Data Collection and Data Analysis

The researcher had personally visited school and collected data i.e. handwriting specimens. Total 384 (48 x 4 =192 girls' and 48 x 4 =192 boys') handwriting specimens were collected and scored using Handwriting Evaluation Tool. Thus the data in numeric form at the interval scale were obtained. Obtained data were analyzed utilizing Oneway ANOVA followed by Post hoc LSD test and t test according to the null hypotheses to be tested.

### 11.1 Experiment: Effectiveness Of Writing Instrument Upon Students' Handwriting

In experimental stage 48 girls were randomly divided into four groups i.e. A, B, C, and D. There were four writing instruments. Students of each group wrote a specimen story with each of four instruments one by one in rotation every day. Thus 192 (48x4) handwriting samples were collected and scored by Handwriting Evaluation Tool. The obtained scores were analyzed utilizing Oneway ANOVA followed by Post hoc LSD test using SPSS software.

**Table - 1**  
**Experiment: Results of Analysis of Variance**

| Section - 1: Descriptive Statistic           |              |          |                    |             |
|--|--------------|----------|--------------------|-------------|
| Ind. Variable                                | N            | Mean     | Standard Deviation |             |
| Fountain Pen                                 | 48           | 21.79    | 2.143              |             |
| Ball Pen                                     | 48           | 22.65    | 1.669              |             |
| Gel Pen                                      | 48           | 22.71    | 1.597              |             |
| Plug Pencil                                  | 48           | 22.33    | 1.705              |             |
| Section - 2: ANOVA                           |              |          |                    |             |
| Source                                       | SS           | DF       | MS                 | F Value     |
| Between Groups                               | 25.266       | 3        | 8.422              | 2.624*      |
| Within Groups                                | 603.479      | 188      | 3.210              |             |
| Total  | 628.754      | 191      | --                 |             |
| Section -3: Significance of Mean Differences |              |          |                    |             |
| Groups                                       | Fountain Pen | Ball Pen | Gel Pen            | Plug Pencil |
| Fountain Pen                                 | --           | 0.85*    | 0.92*              | 0.54        |
| Ball Pen                                     | --           | --       | 0.06               | 0.31        |

\* 0.05 Significance level

From Table 4.2 it is clear that mean handwriting scores of 48 girls according to the type of handwriting instrument i.e. Fountain Pen, Ball Point Pen, Gel Pen and Plug Pencil were 21.79, 22.65, 22.71 and 22.33 respectively. F value of the

differences among these means was found 2.624. The F value was significant at 0.05 level. Thus the null hypothesis “ There will be no significant difference among handwriting scores of students according to the types of instrument.” was rejected and alternative research hypothesis “ There will be significant difference among mean handwriting scores of students’ according to the types of instrument.” was not rejected.

Mean difference between handwriting scores of Fountain Pen and Ball Point Pen (0.85) as well as Fountain Pen and Gel Pen (0.92) were significant at 0.05 level. The differences were in favour of Gel Pen and Ball Point Pen as compare to Fountain Pen. Thus the relation between handwriting instrument and students’ quality of handwriting was observed in statistical analysis. In present study Gel Pen and Ball Point Pen were found superior to Fountain Pen so far as girls’ quality of handwritings was concerned.

### 11.2 Replication: Effectiveness Of Writing Instrument Upon Students’ Handwriting

As a part of validity of the results obtained replication was carried out

similarly as the experiment on the sample of 48 boys. Obtained handwriting scores were analyzed utilizing Oneway ANOVA followed by Post hoc LSD test using SPSS software. Results obtained are presented here.

**Table 2**  
**Replication: Results of Analysis of Variance**

| Section - 1: Descriptive Statistic           |              |          |                    |             |
|--|--------------|----------|--------------------|-------------|
| Ind. Variable                                | N            | Mean     | Standard Deviation |             |
| Fountain Pen                                 | 48           | 21.15    | 2.423              |             |
| Ball Pen                                     | 48           | 21.15    | 2.297              |             |
| Gel Pen                                      | 48           | 21.46    | 2.103              |             |
| Plug Pencil                                  | 48           | 21.15    | 2.083              |             |
| Section - 2: ANOVA                           |              |          |                    |             |
| Source                                       | SS           | DF       | MS                 | F Value     |
| Between Groups                               | 3.516        | 3        | 1.172              | 0.235       |
| Within Groups                                | 935.854      | 188      | 4.978              |             |
| Total  | 939.370      | 191      |                    |             |
| Section -3: Significance of Mean Differences |              |          |                    |             |
| Groups                                       | Fountain Pen | Ball Pen | Gel Pen            | Plug Pencil |
| Fountain Pen                                 | --           | 0.00     | 0.31               | 0.00        |
| Ball Pen                                     | --           | --       | 0.31               | 0.00        |
| Gel Pen                                      | --           | --       | --                 | 0.31        |

Table-2 shows that mean handwriting scores of 48 boys according to the type of handwriting instrument i.e. Fountain Pen, Ball Point Pen, Gel Pen and Plug Pencil were 21.15, 21.15, 21.46 and 21.15 respectively. Fountain Pen, Ball Point Pen and Plug Pencil had equal mean scores with different Standard Deviations. F value of the differences among these means was found 0.235. The F value was neither significant at 0.05 nor at 0.01 level. Thus the null hypothesis "There will be no significant difference among handwriting scores of students according to the types of instrument." was not rejected. So alternative research hypothesis, "There will be significant difference among mean handwriting scores of students' according to the types of instrument." was rejected.

There was not at all difference between mean handwriting scores of (1) Fountain Pen and Ball Point Pen, (2) Fountain Pen and Plug Pencil and, (3) Ball Point Pen and Plug Pencil. There was small difference of 0.31 between mean handwriting scores of (1) Fountain Pen and Gel Pen, (2) Ball Point Pen and Gel Pen and, (3) Gel Pen and

Plug Pencil. The differences were in favour of Gel Pen but were not significant.

Thus the relation between handwriting instrument and students' quality of handwriting was not observed in statistical analysis. In present study none of the writing instrument was found superior to others so far as boys' quality of handwritings were concerned.

### 11.3 Effect Of Gender Upon Quality of Handwriting

Handwriting scores of all four handwriting samples written with four writing instruments i.e. Fountain Pen, Ball Point Pen, Gel Pen and Plug Pencil were merged for each student. Independent sample t-test was performed. Results obtained are presented in Table-3.

**Table-3**  
**Mean, Standard Deviation And T Value According to Gender**

| No | Gender | N  | Mean  | Std. Deviation | T-value |
|----|--------|----|-------|----------------|---------|
| 1  | Girls  | 48 | 22.37 | 1.814          | 5.541** |
| 2  | Boys   | 48 | 21.22 | 2.218          |         |

\*\* 0.01 significant level

From Table 3 it can be read that mean handwriting scores of 48 girls and

48 boys were 22.37 and 21.22 respectively. The value of standard deviation for girls was 1.814 and 2.18 for boys. The difference between mean handwriting scores was in favour of girls. Obtained t value was 5.54, which was significant at 0.01 level as it was greater than table value 2.58 for two tail test. The null hypothesis of the study "There will be no significant difference between mean handwriting scores of students' according to the gender" was rejected. So alternative research hypothesis, "There will be significant difference between mean handwriting scores of students' according to the gender" was not rejected. Girls scored significantly higher than those of boys so far as handwriting scores were concerned.

Thus in present study handwriting quality of girls was found significantly superior to that of handwriting quality of boys.

## **12.0 Discussion Of The Results Obtained**

In present study obtained results during experiment and replication was

not found consistent. Null hypothesis was rejected in experiment whereas it was not rejected in replication. One of the reasons might be the sample selection. The sample selection was done purposefully.

Secondly, normally Fountain Pen is considered to be a good writing instrument, but in present study it was found least effective than rest of the instruments. Gel Pen was highly effective so far as quality of handwriting were concerned. Some of the reasons were drawn out: (1) Gel Pen has solid point as Ball Point Pen and (2) The flow of ink was just as easy flow of Fountain Pen. Thus the Gel Pen possesses characteristics of Fountain Pen and Ball Point Pen. Not only are that most of the students not habituating to write with Fountain Pen. Ball Point Pen has one disadvantage that during writing one has to put presser, which is not comfortable in a long run. In present study there was gender's effect upon quality of handwriting. Handwriting quality of girls was quite superior to the handwriting quality of boys.

**BIBLIOGRAPHY**

- Bhal, J.D. (1991), 'Hastakshar', Rajkot : Late Dr. H.G.Desai memorial Educational Trust.
- Kubawat, R.M. (2005). Handwriting Improvement Programme and Its Effectiveness on Gujarati Handwriting: Unpublished Dissertation, Saurashtra University, Rajkot.
- Mevada, M.G.(2011). A Study of students handwriting in context to copywriting, dictation writing and self memory writing: Unpublished Dissertation, Saurashtra University, Rajkot.
- NCERT, Fifth Survey of Educational Research (1988-92) New Delhi: National Council of Educational Research and Training.
- Panchal, M.R., (1966), 'Teaching English in India', Baroda : Baroda Publication House.
- Tarr, John C. (1991), 'Good Handwriting', London : J.M. Dent Memorial Educational Trust.
- Upadyay, D.M., (1995). A Study of an Effectiveness of Diagnostic and Remedial Programme for the English Handwriting of the Students: Unpublished Dissertation, Saurashtra University, Rajkot.
- Vyas, B.B. (1989). The Effectiveness of Handwriting Improvement Programme. Unpublished Dissertation, Saurashtra University, Department of Education, Rajkot.
- Hilton, O., "Effectiveness of Writing Instruments on Handwriting Details", Journal of Forensic Sciences', JFSCA, vol.29, No.1.Jan 1984, pp. 80-86.
- Masson, J.F., "Felt Tip Pen Writing of Identification." Journal Of Forensic Sciences, JFSCA, vol 30, No.1, Jan 1985, pp.172-177.
- www.education.tas.gov.au."Handwriting Programme-carriculum", Department of Education, December 2009, Tasmania.