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Association of Personality and Handwriting: A Preliminary Study

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ABSTRACT

The association of handwriting with personality is one of the challenging tasks as the handwriting may vary with various conditions. We designed a preliminary study to explore the association of three personality traits, namely, 'Type A', Type B' and "Type AB' with handwriting features. The tests were conducted on twenty-nine subjects. Type A/B Behavioral Pattern Scale (ABBPS) test has been applied to understand the personality of the subjects. Moreover, conventional features of handwriting were compared among the subjects. The study revealed that there is a moderate association between handwriting features and personality.

KEYWORDS: Handwriting features, personality, graphology, Type A/B Behavioral Pattern Scale

INTRODUCTION

Writing may be defined as any conventional system of marks or signs that represent the utterances of a language. Handwriting is writing done by hand with a pen, digital stylus, pencil, or any other writing instrument. The art, skill, or manner of handwriting is called 'penmanship'. Handwriting is taught to and learned by a person using either a copybook letter form or observing and adopting a letter. Writing is a conscious act, through repeated use, the actual formation of each letter or word becomes almost automatic, so that the experienced writer concentrates most on his conscious thought on the subject matter rather than on the writing process itself. Thus, writing comes to be made up of innumerable subconscious habitual patterns that are much a part of the individual assembly of his habits. When a person writes, he is conscious of the subjects' matter but not usually conscious of the way letters are formed. With experience, the writing becomes automatic and is therefore a product of the sub-consciousness. It is affected by state of mind, health, age, and other factors.

Handwriting analysis involves a comprehensive comparative analysis between a questioned document and the known handwriting of a suspected writer. Specific habits, characteristics, and individualities of both the questioned document and the known specimen are examined for similarities and differences. The three steps followed are: analysis, comparison, and evaluation.

In 1897, the term 'Graphology' was coined by Abb Jean-Hippolyte Michon in Paris, and also founded 'The Society of Graphology.' Graphology is the inference of character from a person's handwriting. The theory underlying graphology is that handwriting is an expression of personality. Hence, systematic analysis of the strokes, the way words and letters are formed can reveal traits of personality such as emotional and mental instability. Hence, these traits are important to know and can help deal with the cases of profiling of any serial killer or any criminal and suspect to narrow down the search of an

investigation. Graphology is important in cases related to the psychiatric activity of any criminal, cases related to suicide notes, anonymous letters, ransom notes, poison pen letters, or blackmail demands.

Psychology is the scientific study of behavior and mental processes. Behavior includes all the overt activities such as facial expressions, and movement whereas mental processes include all the covert processes such as thinking, feeling, and remembering. 'Personality' refers to an individual's unique set of consistent behavior. The concept of personality is used to explain: - 1) the stability in a person's behavior over time and across situations (Consistency) and 2) the behavioral differences among people who react to the same situation (Distinctiveness). A 'Personality trait' is a durable disposition to behave in a particular way in a variety of situations. Self-report inventories are personality tests that ask individuals to answer a series of questions about their characteristic behavior. Various self-report personality assessment tests are the 16PF and NEO Personality Inventory, and The MMPI. Projective tests ask participants to respond to vague, ambiguous stimuli in ways that may reveal the subject's needs, feelings, and personality traits. Some projective tests are The Rorschach test, and the Thematic Apperception Test (TAT).

Researchers have studied the influence of one's personality on handwriting which is further summarized in the review of literature section. Graphoanalysis offers advantages that are not shared by most methods of psychological measurement. In the projective approach to personality measurement, the subject may not know the truth about himself, and even if he does, he may not be willing to reveal all that he knows. In the written inventories, there remains the suspicion that if the subject knows his personality, he may deliberately distort it. Another difficulty with traditional tests is that the test scores may be influenced by repeated testing and are also vulnerable to more subtle artifacts. Handwriting on the other hand cannot be faked and repeated samples are less likely to reflect artifactual changes. Another advantage is the ease with which specimens can be obtained. Also, the examination does not require the presence of a subject or a particular test situation, and the written specimen can be retained for future reference and comparison with later specimens.

Personality types A and B are two contrasting personality types originating from a theory developed by cardiologists Meyer Friedman and Ray Rosenman. Type A personality implies a temperament that is stress-prone, and concerned with time management. They are ambitious, rigidly organized, hard-working, anxious, highly status-conscious, hostile, and aggressive. Individuals who possess type-A personalities have the following behavioral patterns:

- They move, walk, and eat fast
- Great at multitasking
- Self-driven feels guilty when relaxing
- Feels impatient with the pace of things, dislikes waiting
- They have a busy schedule and do not have time to enjoy life
- Uses nervous gestures, like a clenched fist or banging hand on the table.
- They are high-achievers, perform beyond par
- They do not easily accept failure

Type B personality is less prone to stress, easygoing, works steadily, enjoys achievement, modest ambition, and lives in the moment. They are social, creative, thoughtful, and procrastinating. Individuals who possess a type-B personality are associated with the following behavioral traits:

- They are not concerned about time
- They compete for fun, not to win

- Mild-mannered
- Never in a hurry and has no pressing deadlines
- Does not brag
- Focus on quality rather than quantity
- Laidback and lives a stress-less life.

The goal of the proposed work is to study the association of different handwriting characteristics with type-A and type-B personality. Although earlier literature focused on the association of different personality traits with handwriting characteristics but has not particularly focused on type-A and type-B personality traits. In this study, the proper difference is pointed out in terms of the features observed in the handwriting of people with type-A and type-B personalities.

LITERATURE REVIEW

Galbraith et al. (1964)[1] researched to prove the reliability of the graphoanalytical approach to handwriting analysis. In their study, 100 students of the University of Hawaii were taken as subjects and each subject was instructed to copy the given paragraph on a sheet of paper. The paragraph was designed to provide the types of strokes under observation with sufficient quantity. Analysis was done by 3 judges (each a graphoanalyst) by counting the number of strokes supposedly indicative of the 5 traits 1) Attention to detail 2) Domineeringness 3) Persistence 3) Self- consciousness 5) Stubbornness. Each trait was judged based on a different type of stroke. The average inter-judge correlation was 78. Hence, reliability was established.

Craumbaugh et al. (1977)[2] researched to prove that by global or holistic method, graphoanalysis contains some validity as a system. In their research, 5 subjects were taken (who knew each other well), and five more people who knew the 5 subjects well were taken. Handwriting samples of all 5 subjects were analyzed by graphoanalysts and salient features of the personality of the subject were summarized in a single page which was coded from A to E and was given to the 5 subjects and the other 5 people who knew all the 5 subjects and were told to identify the person from the given summarized personality features.

Peeples et al. (1992)[3] determined the practicality of using handwriting characters to predict normal personality traits. The study was conducted on 244 college students (168 females and 76 males) with The Personality Research form-E test which measures 22 personality traits. 2 paragraphs (1 copied and 1 freely written) were taken from subjects and 15 handwriting characters were considered for analysis. The study depicted that female handwriting characters projected 2 traits play and desirability while male handwriting characters predicted 12 traits that are abasement, achievement, aggression, change, cognitive structure, harm avoidance, dependence, impulsivity, order, play, sentience, and infrequency.

Kenian et al. (1993)[4] developed a method of measuring psychological stress using handwriting analysis. In their study, 56 soldiers who were paratroopers were considered as subjects. The soldiers were tested twice, under high and under low-stress conditions. The test carried out was State Trait Anxiety Inventory (STAI). The specimen essays were divided into two pairs each containing one biographical and one attitudinal topic. Each subject was given one pair of topics under high-stress conditions and two topics under low-stress conditions. The handwriting variables used for analysis were the size of the writing, margins, fluency, flow, and irregularities of writing. The findings of this study indicate that changes occur in people's handwriting under stress.

Bushnell (1996)[5] conducted a research link between personality and handwriting using the Cattell 16PF personality questionnaire. In this study, the personality of 120 subjects was assessed by the Cattell 16PF and handwriting analysis. Each subject was presented with five handwriting analysis textual reports and five personality textual reports and asked to rank each set in terms of perceived accuracy. The results demonstrated that handwriting reports were ranked at a chance level by self and by others and that personality reports were ranked at a well above chance level by self and by others. The results in this study are quite clear that the personality questionnaire reports allowed identification of the person whilst the handwriting assessment reports did not.

Robert P. Tett et al. (1997)[6] assessed the validity of graphoanalysis to structured self-report personality measures from an extant inventory of 46 undergraduate students by using the Jackson Personality Inventory-Revised (JPI-R) and a sample paragraph containing all letters of the English alphabet. The results of the study suggest that handwriting-personality relations occur at around chance levels (i.e. 5%) and raise serious doubts about the validity of graphoanalysis as an indicator of individual personality differences. Further research using a different guide to graphoanalysis and a larger sample could provide stronger support for the predictive qualities of handwriting analysis.

Williams et al. (2010)[7] examined the relationship between certain handwriting characteristics and Eysenck's Extraversion-Introversion and Kagan's Impulsivity-Reflectivity personality dimensions. The subjects of the study were 46 female introductory psychology students. The personality scales were administered first. Following this, handwriting samples were taken. This study tended both to confirm and cast doubt upon certain claims of graphologists. Limitations of this study were first, it relies on relatively stable handwriting measures that can be measured in each of the subject's scripts. Second, it is limited to characteristics that are relatively easy to measure. For example, very small yet discrete characteristics could not lend themselves easily to analysis. Third, the study employed a narrow sample in terms of gender (all subjects were female).

Gawada (2014)[8] clarifies the beliefs and numerous doubts about the possible identification of personality in handwriting and shows an association between personality traits and handwriting features. The author aimed to verify whether or not there are any specific characteristics of writing to personality traits. The graphic characteristics of the handwriting samples were examined by forensic experts. The results showed that there were few significant correlations between handwriting parameters and personality traits, as measured by the NEO-FFI and EPQ-R. Personality traits, such as neuroticism, psychoticism, extraversion, agreeableness, consciousness, and openness, were measured using personality questionnaires.

Chaudhari et al. (2019)[9] presented links between handwriting and personality psychology and examined different mechanisms for feature extraction to predict a writer’s personality in their research. Psychologically supported handwriting features help to understand personality traits. The study relates these features and encourages the use of computer-based graphology for personality prediction. The study considered handwriting characteristics like zone, baseline, slant, pressure, size, spacing, speed, connections, etc., and described personality traits related to that handwriting characteristic.

MATERIALS AND METHODS

Twenty-nine subjects were provided with an A4 size sheet of paper and a ballpoint pen and were asked to write the given paragraph five times after giving their consent.

"The quick brown fox jumped over the lazy dog. I wonder if the Man in the Moon saw that. If so, I think it's all a fairy story."

Handwriting samples of all the subjects with either type A, type B, or type AB personality were properly analyzed for various features that were observed through the naked eye or by using a magnifying glass and observations were recorded. The features observed in each handwriting sample include baseline, connections, pen lifts, pen pressure, shading, size, slant, margins, speed, and spacing. These features were analyzed for each sample with either type A, type B, or type AB personality.

The Type A/B Behavioral Pattern Scale (ABBPS) Test

Consent of the subjects was taken before conducting the test and all the necessary information given on the test paper was asked to fill. Then the instructions were given as:

"This scale has two parts; the former part contains 17 statements whereas the latter one contains 16 statements related to various behavioral experiences in day-to-day life. You have to read each statement carefully and make your response by making a tick mark against the cell indicating the degree of five alternatives as "strongly agree, agree, uncertain, disagree, and strongly disagree." As all statements are related to your views there is no right or wrong response, therefore be honest in making your preference, and your response will be kept confidential."

After proper instructions, the test was conducted. Scoring was done according to the manual, in which each statement is scored 5 for strongly agree, 4 for agree, 3 for uncertain, 2 for disagree, and 1 for strongly disagree. The sum of the raw scores of form A and form B gave type A and type B scores respectively.

RESULTS AND DISCUSSIONS

Handwriting samples were obtained from twenty-nine subjects between the age group of 18 to 50 years. These were divided into three groups according to the interpretation of the test. Group 1 included handwriting samples of eight persons with 'type A' behavior. Group 2 included handwriting samples of seventeen persons with 'type AB' behavior. Group 3 included handwriting samples of four persons with 'type B' behavior.

Further, the percentage distribution of subjects distributed in three groups is shown in Figure 1. It shows that the maximum subjects are of 'Type AB' personality 59%, followed by 'Type A' 27%, followed by 'Type B' 14%.

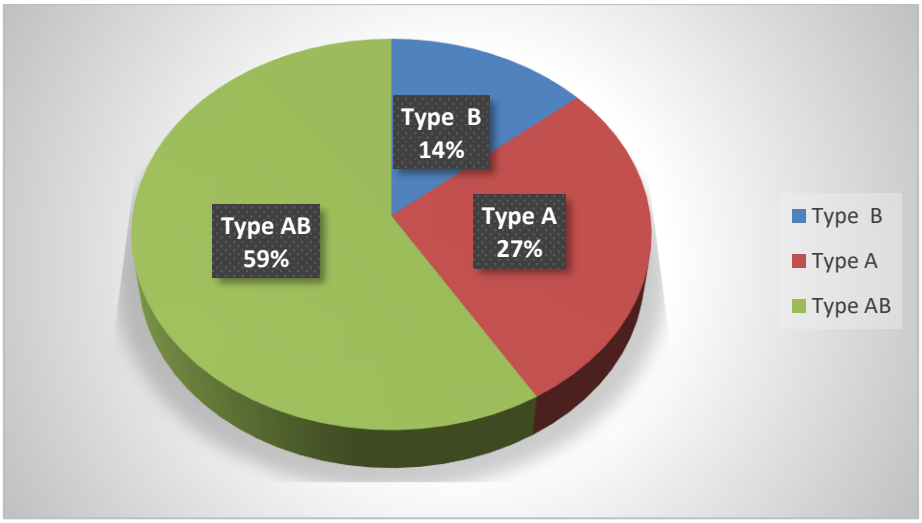

Figure 1: Distribution of various personality types in the samples

Further, 72% of the subjects were male and 28% were female. Figure 2 shows the distribution of males and females in the population.

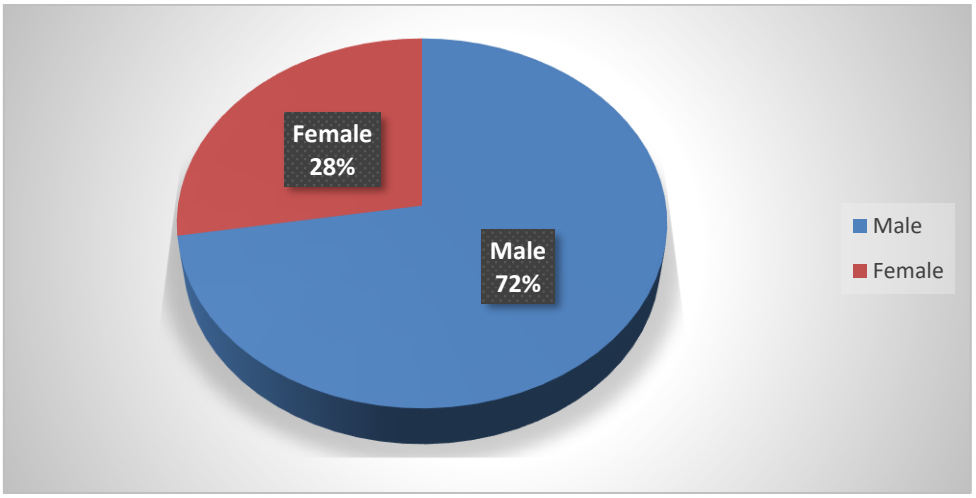

Figure 2: Distribution of male and female population in the samples

Moreover, group 1 (type A) had 6 males and 2 females, group 2 (type AB) had 12 males and 5 females and group 3 (type B) had 3 males and 1 female in the population. Figure 3 shows the distribution of male and female population among groups.

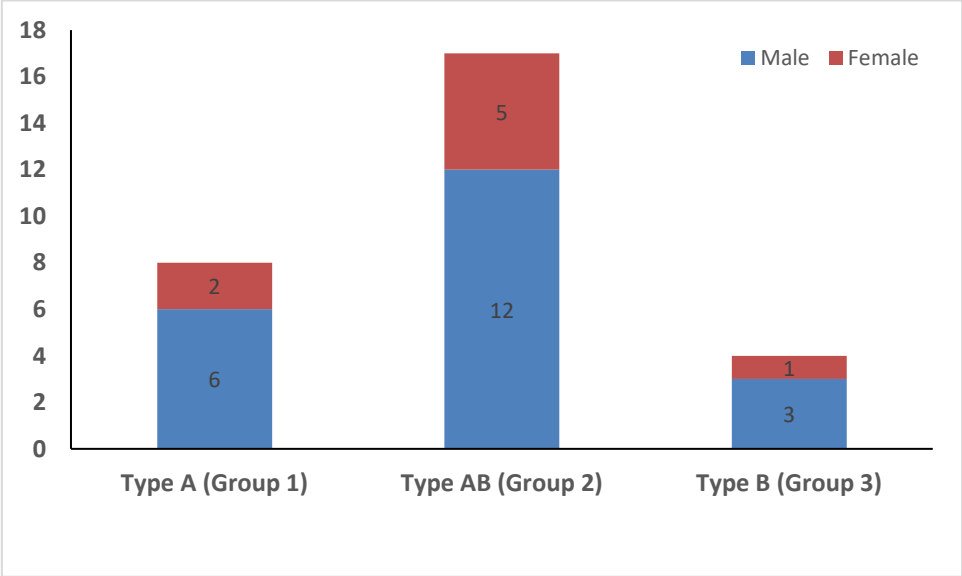

Figure 3: Distribution of male and female population among groups

Conventional method of handwriting analysis:

Various features of handwriting were observed in the eight samples of Group 1 (type A) and an overall trend in the features was recorded as shown in Table 1.

Table 1: Handwriting features in samples of Group 1 (Type A)

Features	S1	S2	S3	S4	S5	S6	S7	S8	Trend
Baseline	Mixed	Ascending	Ascending	Horizontal	Horizontal	Mixed	Ascending	Horizontal	**None**
Connections	Normal	Normal	More	Very Less	Normal	More	More	Less	**More**
Margin (L)	Very Less	Normal	Less	Less	Less	Normal	More	Normal	**None**
Margin (R)	Very Less	Very Less	Very Less	Less	Less	Less	Very Less	Less	**Less**
Pen Lift	Present	Present	Absent	Present	Absent	Present	Present	Absent	**Present**
Pen Pressure	Less	Less	Less	Less	Less	Less	Less	More	**Less**
Shading	Absent	Present	Present	Present	Absent	Present	Present	Absent	**Present**
Size (Lower)	Normal	Normal	More	Less	More	More	Normal	Less	**None**
Size (Middle)	Normal	Normal	More	Less	Normal	Less	Normal	Less	**Normal**
Size (Upper)	Normal	Normal	Normal	Normal	More	More	Normal	Less	**Normal**
Slant	Vertical	Left	Vertical	Left	Vertical	Right	Vertical	Vertical	**Vertical**
Spacing	Less	Normal	More	More	Very less	Normal	Normal	Less	**None**
Speed	More	More	More	More	More	More	More	Less	**More**
Initial stroke	Blunt	Blunt	Sharp	Sharp	Blunt	Blunt	Blunt	Sharp	**Blunt**
Terminal Stroke	Sharp	Blunt	Sharp	Sharp	Blunt	Sharp	Sharp	Sharp	**Sharp**

Various features of handwriting were observed in the seventeen samples of Group 2 (type AB) and an overall trend in the features was recorded as shown in Table 2.1 and 2.2

Table 2.1: Handwriting features in samples of Group 2 (Type AB)

Features	P1	P2	P3	P4	P5	P6	P7	P8	P9
Baseline	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Ascending	Ascending	Horizontal
Connections	Less	Normal	Less	Less	Less	More	More	More	Normal
Margin (L)	Normal	Less	Very Less	More	Less	Normal	Normal	Less	More

Margin (R)	Less	Less	Very Less	Less	Very Less	Less	Very Less	Normal	Less
Pen Lift	Absent	Absent	Absent	Absent	Absent	Present	Present	Absent	Absent
Pen Pressure	More	More	More	Normal	More	Less	Less	More	Less
Shading	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent
Size (Lower)	Normal	More	Less	Normal	Normal	More	More	Normal	More
Size (Middle)	Normal	Normal	Less	Normal	Less	Normal	Normal	Normal	Normal
Size (Upper)	Normal	More	Less	Normal	Less	More	Normal	Normal	Normal
Slant	Vertical	Vertical	Vertical	Left	Vertical	Vertical	Vertical	Vertical	Mixed
Spacing	More	Less	Normal	More	More	More	Less	Less	More
Speed	Less	More	Less	Less	Less	More	More	More	Normal
Initial stroke	Blunt	Sharp	Blunt	Blunt	Blunt	Sharp	Sharp	Sharp	Sharp
Terminal Stroke	Sharp	Sharp	Blunt	Sharp	Blunt	Sharp	Sharp	Blunt	Blunt

Table 2.2: Handwriting features in samples of Group 2 (Type AB)

Features	**P10**	**P11**	**P12**	**P13**	**P14**	**P15**	**P16**	**P17**	**Trend**
Baseline	Mixed	Horizontal	Ascending	Horizontal	Descending	Mixed	Mixed	Ascending	**Horizontal**
Connections	Less	More	More	Less	Less	Normal	More	More	**None**
Margin(L)	More	Normal	Less	Less	Normal	Less	Less	Less	**Less**
Margin (R)	More	Less	Very Less	More	Very Less	Normal	Very Less	Normal	**None**
Pen Lift	Absent	Present	Present	Present	Absent	Absent	Absent	Absent	**Absent**
Pen Pressure	Less	Less	Less	Normal	Less	Less	Less	More	**None**
Shading	Absent	Absent	Present	Present	Absent	Present	Present	Absent	**Absent**
Size (Lower)	Normal	Normal	Normal	More	More	Normal	Normal	Normal	**Normal**
Size (Middle)	More	Normal	Normal	Normal	Normal	Less	More	Normal	**Normal**

Size (Upper)	Normal	Normal	Normal	More	Normal	Normal	Normal	Normal	**Normal**
Slant	Left	Vertical	Left	Mixed	Vertical	Right	Vertical	Vertical	**None**
Spacing	More	More	Less	More	More	Less	Normal	Less	**More**
Speed	More	Less	More	Normal	Normal	More	Normal	More	**None**
Initial Stroke	Sharp	Blunt	Sharp	Blunt	Blunt	Sharp	Blunt	Sharp	**None**
Terminal Stroke	Sharp	Blunt	Sharp	Blunt	Sharp	Sharp	Blunt	Blunt	**None**

Various features of handwriting were observed in the four patients of Group 3 (Type B) and an overall trend in the features was recorded as shown in Table 3.

Table 3: Handwriting features in samples of Group 3 (Type B)

Features	Q1	Q2	Q3	Q4	Trend
Baseline	Horizontal	Ascending	Horizontal	Horizontal	**Horizontal**
Connections	More	Normal	Less	Less	**Less**
Margin (L)	More	More	Normal	Normal	**More**
Margin (R)	Less	Normal	Less	Normal	**Normal**
Pen Lift	Absent	Absent	Absent	Absent	**Absent**
Pen Pressure	More	More	More	More	**More**
Shading	Present	Absent	Absent	Absent	**Absent**
Size (Lower)	Normal	Normal	More	More	**More**
Size (Middle)	Normal	Normal	More	Less	**Normal**
Size (Upper)	Normal	Normal	Normal	Normal	**Normal**
Slant	Vertical	Vertical	Vertical	Vertical	**Vertical**
Spacing	Very Less	Normal	Normal	Less	**Less**
Speed	Normal	Less	Less	Less	**Less**
Initial Stroke	Blunt	Blunt	Blunt	Blunt	**Blunt**
Terminal Stroke	Sharp	Blunt	Blunt	Sharp	**None**

A comparative analysis of handwriting features with personality has been shown in Table 4. On comparison, changes in some handwriting features were evident.

Table 4: Comparison of trends of handwriting features in samples of all the Groups (1, 2, 3)

Features	Group 1-Type A	Group 2-Type AB	Group 3-Type B
Baseline	None	Horizontal	Horizontal
Connections	More	None	Less
Margin (L)	None	Less	More

Margin (R)	Less	None	Normal
Pen Lift	Present	Absent	Absent
Pen Pressure	Less	None	More
Shading	Present	Absent	Absent
Size (Lower)	None	Normal	More
Size (Middle)	Normal	Normal	Normal
Size (Upper)	Normal	Normal	Normal
Slant	Vertical	None	Vertical
Spacing	None	More	Less
Speed	More	None	Less
Initial Stroke	Blunt	None	Blunt
Terminal Stroke	Sharp	None	None

Persons with 'Type A' personalities show more connections between alphabets, higher occurrence of pen lift, generate less pen pressure, their words have shading, and write at higher speed. On the other hand, persons with 'Type B' personalities show less connection between alphabets, pen lift is mostly absent, generate more pen pressure, their words have no shading, and have slow speed while writing. As the name suggests, people with 'Type AB' personalities show the features of both type A and type B in common, they even tend to show a combination of both 'Type A' and 'Type B' personality traits through their handwriting.

CONCLUSION

In the present study, Handwriting samples were collected from 29 subjects, and the ABBPS test was conducted on each subject to know whether they had 'Type A', 'Type B', or 'Type AB' personality. The conventional method of handwriting analysis revealed handwriting features like connections, pen lift, pen pressure, shading, and speed could be used to differentiate whether a person has a type A or type B personality. Although it was seen that subjects with type AB personality tend to show the characteristics of both type A and type B personality, hence, the above-mentioned handwriting features cannot be used to differentiate type AB personality from the other two types.

A bigger sample size, thorough handwriting analysis on each letter, and kinematic analysis of handwriting are a few future scopes of this work.

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