

# ANALYSIS OF HANDWRITING CHARACTERISTICS IN RELATION TO LEADERSHIP STYLE

Renu Verma<sup>1</sup> and Vishav Jyoti Bajaj<sup>2</sup>

<sup>1</sup>(Former Principal, Government College of Education, Sec-20, Chandigarh, India)

<sup>2</sup>(Research Scholar, Department of Education, Panjab University, Chandigarh, India)

E-mail: <sup>1</sup> reach2renu@gmail.com, <sup>2</sup> bajajvishav@gmail.com

## ABSTRACT

The present study aimed to examine the handwriting characteristics in relation to leadership styles. The characteristics of handwriting and its relationship to leadership styles was calculated by using the data obtained from 150 senior secondary school students of Punjab by using Dubey (2005), Multifactor Leadership Questionnaire (MLQ). Scores of handwriting scale and Multifactor Leadership Questionnaire (MLQ) was co-related to the handwriting characteristics of slants to the right, left or upright; size of handwriting; formulation of angle, the sharp points; space between lines and words; final stroke of letter 'e'; t-bars cross the t stem; loops of lower parts of y and g and leadership qualities. Findings were determined by using t-test and coefficients of correlation were calculated as required. A significant correlation was found between the handwriting measures and leadership style in total at 0.01 level of significance. Handwriting with transformational style of leadership, transactional style and outcomes of leadership were found to be significant at 0.01 level of significance. No significant relationship between the handwriting and laissez faire leadership style was found. Further, no significant differences were found between female leadership styles and male's leadership styles. The research also compared women and men on transformational, transactional, laissez-faire leadership styles and outcome of leadership and found to be no significant relationship which means women's are at par with men's on leadership style.

**Keywords:** *Handwriting Analysis, transformational leadership style, transactional leadership style, laissez-faire leadership styles and outcome of leadership.*

## INTRODUCTION

Centeredness is the soul of leadership, the purpose of which is to serve others selflessly. Leadership integrates spiritualism, increases vision, hope, faith, and human love naturally. Leaders encourage self and others. They have an insight to develop well-being with devotion. This devotion creates the sense of wholeness, harmony, and good



fortune results in care, concern, and appreciation for both self and others. The leadership qualities have power that overcomes all the destructive emotions like fear, anger, sense of failure and pride and attain joy, peace, and serenity.

The above leadership qualities influence and are responsible to regulate all the human body activities in their daily life like our brain does. The leaders process, integrate, coordinate information, they obtain and take decisions accordingly.

Every human being has certain leadership qualities. The main thing is to identify these values and capacities. A possible solution to link and to search for reliable means of authentication and identification is through handwriting analysis. This existing method for the analysis of an individual's personality through their handwriting (graphology) draws reliable inferences about the essence of a person's personality.

### **HANDWRITING ANALYSIS**

Handwriting analysis is a very old and treasured science. This art was developed by the Chinese 3,000 years ago, in order to understand the nature and personality type of an individual.

The act of inscribing handwriting on the leaf paper requires energy. It creates tension inside the brain which guides muscles to trace content. This content is a symbolic representation of the inner domain of a person. In this concern, it is significant to point out that graphological analysis is independent of drawing conclusions about individual traits. Significant advances have been made to construct a link between the unveiling emotions, psychic sphere, unconscious and shadow areas (Harralson and Miller, 2013).

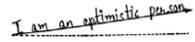
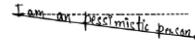
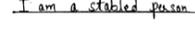
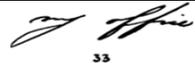
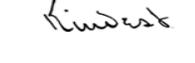
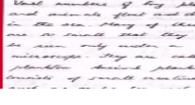
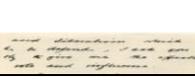
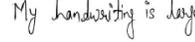
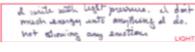
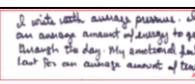
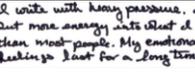
Every handwriting style is unique in its own way. Desvignes (2013) adds that two people are always different but can easily produce the same results in a personality test. However, no two people will ever have the same handwriting. The researchers believe that a person's handwriting - the script and its placing on the page expresses the unique impulses of the individual logically. The handwriting on the page is motivated by a subconscious reflecting the conduct and personality traits. It reveals the frame of mind and the emotional state at the time it is written. People can say whatever they want... but handwriting never lies (Dresbold, 2008).

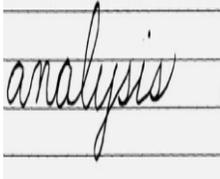
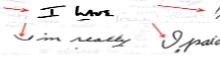
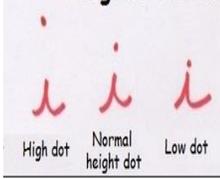
So, every graphic movement one produced, such as handwriting, is actually a "brain writing" and leaving our "brain print" on the paper. Our brain prints reveal all about persons thinking and feelings. These alphabets are actually an x-ray of our brain.

### **A Systematic Study of Handwriting**

While analyzing handwriting characteristics following parameters were considered to know about an individual:

S.no	Parameter	Type	Example	Analysis
1.	Overall organization of Script	Consistency in letter size, slant, pressure, spacing.		Consistency in script style shows that the writer knows his own mind.

2.	Baseline	Ascending baseline		Optimistic, Positive, enjoy good health.
		Descending baseline		Depressive, Pessimistic, over thinker
		Straight baseline		Self-control, have good reasoning power, practical approach towards life.
3.	Word Slant	Right slant		Persons like to be alone and can control their emotions
		Upright Slant		logical and practical
		Left Slant		Introvert, hard to express emotions, selfish, feels insecure.
4.	Margins	Left and Right margin		Person has relation with past and future.
		Top and Bottom margin		Pay respect to others and approach towards future.
5.	Spacing (time)	Lines		Shows planning and organization of work done. The number of lines shows total activity a person can perform.
		Words		Predicts distance maintain from people around.
6.	Size of Script	Large		Leadership, confident, attention seekers,
		Medium		Social, communicative, extravagant, love to show off.
		Small		Mixed quality. Average both leaders and followers. Concentration, efficient, gets in details, less confident, wants to be alone.
7.	Pressure (energy)	Light pressure		Low energy. No involvement.
		Medium pressure		Average energy can work continuously for 8 hours without getting tired.
		Heavy pressure		Highly energetic. Can do continuous work for hours. Deeply attached with relations.

8.	Zones of Script	Upper brain intellectual being (b,d,h,k,l,t)  Middle (a,o,e)  Lower physical being (g,j,y,z)		Intellectual, egoistic and spiritual person.  Believe in enjoying present moment without worrying about future.  The writer has a strong attachment to the past. They believe in materialistic world of money, sex and relationships.
9.	Formation of Identity word			Public self-image is how you want others to think about you.
		No loop		Independent; shaken of all the parental influence.
10.		High dot		In harmony between the concrete and the ideal.
		Normal dot		Practical sense, concrete, realistic.
		Low dot		Difficulty to face obstacles, greedy, depressed.
	t- bars	High		High goals and aspiration
		Medium		Medium aspirations
		Low		Low aspiration/ goals
	a,o loops	Open		Talkative, honest
		Closed		Non talkative

**LEADERSHIP STYLE**

Leadership means influencing others to an extreme performance so as to accomplish any task, objective, or project which should be satisfactory (Cohen, 1990). A life actively provides a sphere for harmonious and progressive development for future leaders. Our education system provides the supreme sphere for acquisition of leadership skills. These two spheres transform a man from a social animal to human being. The man’s innate powers” develop through education. It is a significant responsibility of each educational institute to focus and develop leadership skills among the students. As in this globally competitive environment, effective leadership is needed to reduce the attrition rate.



In the words of Kearns (2005) Leadership has a purposeful relationship among participants, which occurs episodically, with the individual who shows skills to influence others and bring change.

Williams (2005), states that a leader is an artist who dances and sings with the circumstances, the hindrances, glitch, the clique, and the enigma.

In view of Valenzuela et.al (2017) Leadership is the ability to develop and communicate a vision to a group of people that will make that vision true.

Thus, effective leadership always comes with an ability to lead, organize and accommodate a thousand minds with an eminent trait of a well-formed personality. Leadership is only successful when it is insightful and contains nuggets of wisdom regarding team spirit, mutual trust, and cooperation.

### **REVIEW OF THE RELATED STUDIES**

Solmaz et.al (2017) studied the importance of graphology in determining the managerial qualities of the future 17 women leaders within the z generation of Coventry University. To know whether they were holding any leadership qualities and features their signatures was analyzed. They also examined whether they were compatible with the characteristics of the course they had chosen to study at university. Leadership features were divided into 4 groups. These included personnel characteristics, mental characteristics, emotional features, general features. Results showed personal characteristics of selected students had more empathetic feelings and their interpersonal relationships were also high. All the students were very intelligent and having intellectual structures high but entrepreneurship ability seemed to be low in some. The analysis showed significant relationship between self-control and self-knowledge. It had been determined that the leadership characteristics analysed by the signatures were quite high in the selected z-belt individuals.

Alam et.al (2020) studied employability analysis of person with the help of Handwriting analysis. They considered graphology as the scientific scheme for recognizing, identifying, and distinguishing behaviour and patterns related with the handwriting. The authors considered this method as a pre-test in any recruitment process to judge employability skills in a person. It is a non-biased parameter to predict personality and leadership skills through handwriting analysis. Convolution Neural Networks (CNN) was used to study neural networks present in brain. This method was easier to collect various algorithmic innovations from huge amount of data. The handwriting sample analysed for structural graphic elements to predict the personality traits and leadership qualities after pre-processing of images using (Open Source Computer Vision Library) and CNN. The features extracted were compared with the SVM trained results stored in the knowledge base using Support Vector Machine (SVM) classifier. The employability analysis system was created in PyQt Application using Python Language. Approximately 500 images are selected and sorted into 4 categories namely upper-zone, lower-zone, slant-height and pen-pressure for handwriting analysis. This dataset was then preprocessed and fed to the CNN so that the model could be created. The results obtained showed 98% accuracy in identifying the handwriting features and assigning the correct trait as analytical skills, leadership skills, team player skills etc. according to principles of Graphology.



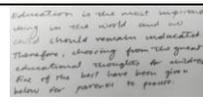
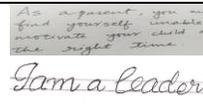
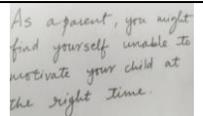
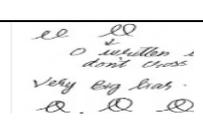
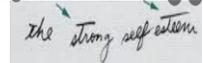
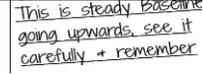
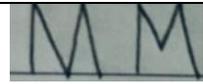
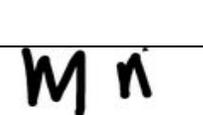
Bhardwaj and Sharma (2021) studied the psychological condition of pilots through Computer Aided Graphology. Graphology is the science of reading and analysing handwriting to detect the personality traits of a person. We have incorporated the concept of graphology with the use of computer systems, making the process of analysis faster, more reliable and cost efficient. This paper focused on the use of computer aided graphology in the field of aviation where the pilots were checked before the flight to determine whether they are psychologically/mentally fit to fly the plane. There have been various cases in the past where the pilots had crashed the plane due to depression, stress, tension, fatigue, lack of sleep or intoxication. All of these can be majorly detected by graphological analysis to prevent any such casualties.

**HANDWRITING ANALYSIS AND LEADERSHIP STYLE**

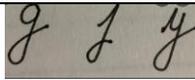
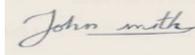
Handwriting analysis is a scientific tool blessed with an ingrained capacity to penetrate the depths of human emotions. Dimensions like slant, height, the width can be measured physically; the other kind like style, form of the letters, the diffusion, or sharpness of the borders of the strokes, etc., evaluated only qualitatively or descriptively. These qualities help the handwriting analysts to easily correlate with all other disciplines, such as psychology, psychoanalysis, criminology, sociology, anthropology, psychiatry, and medicine. Thus, handwriting analysis is associated with many traits of personality like determination, emotional stability, diplomacy, self-confidence, personal integrity, acceptance originality, and creativity. Intellectual abilities included judgmental ability, knowledge, and verbal communication ability.

**Following are the handwriting indicators that may suggest the individual having leadership qualities:-**

S.no.	Characteristics	Type	Example	qualities
1.	Confidence	Strong middle zone, good pressure, broad crossbars, well-formed letters.		The person belief that one can have faith in or rely on someone or something.
2.	Ambitious	High t crossbars and i- dots. Large capitals. High pressure.		The person Have a strong desire and determination to succeed.
3.	Practical	Well-balanced zones, A/B Slants, normal or simple formation, legible, no frills.		A person is sensible and realistic in his approach towards situation.
4.	Communication Skills	Good middle zone, open e, right slant, connected writing		The person has ability to share ideas and feelings effectively.
5.	Concentration	Small handwriting well placed i-dots.		The action or power of focusing all one's attention.
6.	Will Power	Good pressure + t crossbars and horizontal bars		Control exerted to do something or restrain impulses.

7.	Productivity	Right + Bottom margin occupied, good number of lines in a page, Good lower zone + pressure.		An individual will achieve a significant amount or result.
8.	Leadership	Large capitals + good line spacing + good pressure + large writing + strong crossbars		An individual will be action oriented. He can lead a group of people or an organization.
9.	Honesty	Simple well-formed writing with no frills and legible signature + no double loops or "open from down" middle zone		A person is Free of deceit; truthful and sincere.
10.	Dishonesty	Illegible signature, handwriting, double loops, middle zone letters open from down		A person act dishonestly or unfairly in order to gain an advantage.
11.	Self Esteem	High crossbar in letter 't' with bold signatures.		It reveals confidence, ambition, and an ability to plan ahead, high goals.
12.	Analytical Skills	Inverted 'v' formations in letter 'm' & 'n'		suggests analytical depth in a person.
13.	Positive Attitude	Moderately upward inclining baselines		that person is optimistic
14.	Decision making ability	Pointed bottom in letter 'v' & Capital 'M'		good decisive capability
15.	Planning & Organization	Balanced upper & lower loop formation in small letter 'f'		gives idea about person's business oriented skills
16.	Listening skills	Good formation of letter 'e' especially the inner loop		the person is a good listener
17.	Attentive and Loyal	Dot placement of small letter 'i' just above the stem		the person is attentive to details and loyal
18.	Sharpness	Pointed formation on the upper part of the small letters 'm, n & h'		The person is mature, intelligent and sharp. He can take decision and learn new things quickly.
19.	Diplomacy	Starting stroke or first hump/arc in letter 'm' & 'n' bigger than rest of the humbs		The person is good diplomat as the first arch of letter M represents the value the individual grants to himself and to his deep Ego.
20.	Endurance	Healthy pressure of neatly placed 't' bar.		High goals, dynamic, idealist, ambitious, long range planner.



21.	Learning from mistakes:	Completion of lower loop in letters 'j', 'g' & 'y'		The person tries to learn from his mistakes in past.
22.	Imagination	Healthy loop formation in letters 'b, g, h, j, l, y'		a person has good imagination ability.
23.	Self assurance:	Straight, firm and complete underscore below Signature		Balanced emotions and healthy self assurance.

**STATEMENT OF THE PROBLEM is as follows:-**

**HANDWRITING ANALYSIS IN RELATION TO LEADERSHIP STYLE.**

**OBJECTIVES OF THE STUDY**

The objectives of the study were as follows:

1. To study the relationship of handwriting analysis with the leadership style of Senior Secondary school students.
2. To study the relationship between handwriting analysis with transformational leadership (Dimension of Leadership) of Senior Secondary school students.
3. To study the relationship between handwriting analysis with transactional leadership (Dimension of Leadership) of Senior Secondary school students.
4. To study the relationship between handwriting analysis with laissez faire style of leadership (Dimension of Leadership) of Senior Secondary school students.
5. To study the relationship between handwriting analysis with outcome of Leadership (Dimension of Leadership) of Senior Secondary school students.
6. To compare handwriting analysis with the leadership based on gender.

**HYPOTHESES OF THE STUDY**

The present study were conducted to test the following hypotheses:

1. There exists no significant relationship between the handwriting analysis and leadership style of Senior Secondary school students.
2. There exists no significant relationship between handwriting analysis with transformational leadership (Dimension of Leadership) of Senior Secondary school students.
3. There exists no significant relationship between handwriting analysis with transactional leadership (Dimension of Leadership) of Senior Secondary school students.
4. There exists no significant relationship between handwriting analysis with laissez faire style of leadership (Dimension of Leadership) of Senior Secondary school students.



5. There exists no significant relationship between handwriting analysis with outcome of Leadership (Dimension of Leadership) of Senior Secondary school students.
6. There exists no significant difference in handwriting analysis with the leadership based on gender.

### **DELIMITATIONS OF THE STUDY**

- 1) The present study was confined to the analysis of Handwriting in English only.
- 2) A few handwriting traits were taken up. These are:
  - (i) Handwriting slant
  - (ii) Handwriting size
  - (iii) Handwriting Zones
  - (iv) Handwriting pressure
  - (v) Handwriting baseline
  - (vi) Handwriting margins
  - (vii) Handwriting having spacing in words and lines
  - (viii) Angular handwriting
  - (ix) Type of i and t bars
  - (x) Signature
  - (xi) I and
  - (xii) Leadership qualities

### **DESIGN OF THE STUDY**

The design of the study was based on the purposes and approaches the research studies were distinguished on. The selection of an appropriate method was employed, keeping in mind the nature of the problem.

The practical design of the study was set under the following broad headings.

- (i) Sample
- (ii) Tools
- (iii) Data collection
- (iv) Statistical techniques

### **SAMPLE**

The population of the study was senior secondary school students. A sample of 150 senior secondary school students were selected from Government senior secondary school, Mubarikpur and Government Senior Secondary school, Banur of Punjab with random sampling technique.

### **TOOLS USED**

In the present study, the following tools were employed to collect the data.



1. Handwriting Analysis Scale: Self-constructed Handwriting Analysis Scale was used to collect the data.
2. Dubey Multifactor Leadership Questionnaire-5x short (MLQ, 2005)

**ANALYSIS AND INTERPRETATION**

In order to draw inferences, t- test was applied and coefficient of correlation was calculated as required. The results of the analysis are as follows:

**Table 1 Showing correlation between variables**

S.no.	Variables	Value of ‘r’
1.	Handwriting with leadership style in total	.667**
2.	Handwriting with transformational style of leadership	.631**
3.	Handwriting with transactional style of leadership	.364**
4.	Handwriting with laissez faire style of leadership	.054
5.	Handwriting with outcome of leadership	.386**

\*t-value is significant at 0.05 Level      \*\* t-value is significant at 0.01 Level (2- tailed)

**Table 2 Showing Mean, Standard deviation and t-values for handwriting Analysis and leadership style**

S. no.	Variables	Gender	Mean	Std. Dev.	Value of ‘t’
1.	Handwriting parameters	male	28.02	3.22	1.312
		female	28.25	3.63	
2	Leadership style in total	male	116.86	19.27	.837
		female	119.74	19.07	
3	Transformational leadership style	male	56.91	12.67	.526
		female	58.07	12.10	
4	Transactional leadership style	male	29.45	5.58	.471
		female	29.95	6.02	
5	Laissez faire leadership style	male	6.02	3.28	.800
		female	6.56	3.89	
6	Outcome of leadership	male	24.48	6.55	.546
		female	25.16	7.15	

\*t-value is significant at 0.05 Level      \*\* t-value is significant at 0.01 Level

**TESTING OF HYPOTHESES**



1. The coefficient of correlation between handwriting and Leadership style of secondary school students was found to be .667, which is significant at 0.01 level. Therefore, Hypothesis I, “There will be no significant relationship between the handwriting analysis leadership qualities of Senior Secondary school students” is not retained as the data did not support the hypothesis. This means that there is a significant relationship between Handwriting analysis and leadership. The different characteristics in the handwriting of the senior secondary school students show the particular type of leadership style.
2. The coefficient of correlation between handwriting and transformational Leadership style of secondary school students was found to be .631, which is significant at 0.01 levels. Therefore, Hypothesis II, “There will be no significant relationship between handwriting analysis with transformational leadership style (Dimension of Leadership) of Senior Secondary school students.” is not retained. This means that there is a significant relationship between handwriting analysis and transformational leadership style of the senior secondary school students.
3. The coefficient of correlation between handwriting and transactional Leadership style of secondary school students was found to be .364, which is significant at 0.01 level. Therefore, Hypothesis III, “There will be no significant relationship between handwriting analysis with transactional leadership style (Dimension of Leadership) of senior secondary school students.” is again not retained as the data did not support the hypothesis. This means that there is a significant relationship between handwriting analysis and transactional leadership style.
4. The coefficient of correlation between handwriting analysis with laissez faire leadership style (Dimension of Leadership) was found to be .054, which is not significant at 0.01 level or 0.05 level. Therefore, the hypothesis IV, “There exists no significant relationship between handwriting analysis with Laissez faire leadership (Dimension of Leadership) of Senior Secondary school students.” is accepted. This means that there is no significant relationship between handwriting analysis and laissez faire leadership style.
5. The coefficient of correlation between handwriting and outcome of leadership of secondary school students was found to be .386, which is significant at 0.01 level. Therefore, Hypothesis IV, “There will be no significant relationship between handwriting analysis with Leadership performance of Senior Secondary school students.” is rejected. This means that there is a significant relationship between handwriting analysis and leadership performance.
6. The t-value for significance of difference between the means of senior secondary school students on the variable of handwriting in total is 1.312, leadership in total is .837. Transformational leadership was found to be .526, on Transactional leadership .471, on the Laissez faire leadership is .800 and on outcome of leadership is .546. This is quite evident that handwriting of senior secondary schools students does not significantly differ in leadership style. This shows that a male and female student does not differ in leadership qualities. Females are every bit as capable of being good leaders as males. Hence the Hypothesis, “There exists no significant difference in handwriting analysis with the leadership based on gender.” is accepted.



#### **IV. DISCUSSION OF RESULTS**

The findings of the present study showed significant correlations between handwriting and leadership styles. Transformational leadership style was shown to be more prevalent among secondary school students than transactional leadership style. The findings also imply that pupils in senior secondary school who exhibit either of the styles are dedicated to their school. Those with a transformative leadership style inspire and motivate others to achieve extraordinary outcomes

Transformational leadership styles were influenced significantly by handwriting. It shows that senior secondary school pupils may pay attention to their peers' developmental needs. They can go above and beyond to attain group goals, resulting in good changes in the community as a whole.

Those who have a close correlation between their handwriting and transactional leadership styles are successful managers. These qualities are focused on an organization's academic advancement as well as peer success. The leader motivates his followers with both rewards and punishments, and he achieves tasks in a specific manner.

Balanced f, high t bars, i-dot to right side, moderate slant, ascending baseline, and wide loop and long in upper zone, left hump in m reflect leadership qualities in the handwriting. These traits were practically identified throughout all handwriting samples.

Both leadership styles have an impact that cannot be overlooked. Because school is a little society and students are the future leaders, the findings of this study are beneficial to society. Leaders should learn about the people around them because, in order to be effective, leaders must understand two basic concepts: people are complex, and people are different.

Furthermore, non-strategic leadership is defined as a laissez-faire style to leadership. The recent study's findings revealed that there is no correlation between handwriting and laissez-faire style. This is not a discouraging finding. It is obvious that this method is quite successful if the followers are intelligent and skilled. It's also worth mentioning that, leaders give their followers unlimited power and flexibility in carrying out various tasks, the laissez-faire leaders are totally dependent on them for final decision-making. As a result, it may be concluded that a laissez-faire leadership style and handwriting have no positive effect.

Finally, there was a significant correlation between handwriting and leadership outcome in this study. On leadership factors, female leaders have scored higher. They portrayed themselves as using more effort with greater efficiency in order to satisfy their followers. This means they contribute more to their classmates' growth and help to foster a positive school climate, covering all the aspects of the School. Thus, it can be concluded that there is no positive influence of laissez-faire leadership style.

#### **CONCLUSION**



This study was remarkable in approach to look at aspiring leaders. In-depth examination of handwriting traits linked to leadership has not only broadened our understanding of leadership styles, but also provided answers to the question of how successful leadership styles are. The baseline, slant, margins, size, spacing between lines and words, loops, pen pressure, connections, i-dots, t-bars and signature are among structural aspects that were examined in this study.

Transformational leadership style has been identified as distinct from all other leadership styles among senior secondary school students. This study demonstrates that leadership is a positive development for those who will be in positions of leadership in the future. The leadership gap can be overcome by leadership training and thus a better learning culture can promote better school performance and student achievement. Because schools are miniature societies for these aspiring leaders, these leaders choose the best solutions for the circumstances, forming the largest alliances possible to carry out their decisions. They are self-assured, are more environmentally conscious, intellectual, competitive, and open-minded.

Another finding of this study showed that females were on level with their male counterparts, implying that leadership styles are not gender-based. Females have more visibility, flexibility, and social adaptation skills, allowing them to attain some, if not all, of the goals they set for themselves. Furthermore, one may argue that just as men lack masculine stereotypes, women lack feminine stereotypes. As a result, this can provide everyone with the successful objectives. The leadership styles are the most effective for school performance. As schools are miniature societies for these grooming leaders. These budding leaders choose the right solutions in accordance with the condition reaching the broadest alliance in implementing these decisions. They are self-confident, governed with strong leadership skills, more sensitive to the environment, intelligent, entrepreneurial, and open-minded.

The findings of this study could be developed to determine future leaders based on their leadership styles and to help them develop leadership skills at a young age. They will bring global transformation by changing human fate.

## REFERENCES

- [1] H. Harralson and L.S. Miller, Developments in handwriting and signature identification in the digital age. *Journal of Forensic Document Examination*, 23(1), 2013, 25-47.
- [2] H.G. Desvignes, A French love affair... with graphology an article By Hugh Schofield BBC News, 2014, Paris.
- [3] M. Dresbold and J. Kwalwasser, *A Top Sex, Lies, and Handwriting Expert Reveals the Secrets Hidden in Your Handwriting* (FreePress,2008)
- [4] W. A. Cohen, *The art of a leader* (New Jersey: Jossey-Bass, 1990).
- [5] P. Kearns, *Defining and measuring the value of leadership*, 2005.
- [6] D.F. Williams, *Toxic leadership in the U.S. Army*, doctoral theses, U.S. Army War College, Carlisle Barracks, PA., 2005.



- [7] R. J., Valenzuela, M., Intindola, M., & Flinchbaugh, C, Preparing potential leaders: Facilitating a learning experience on LMX and fairness in the workplace. *The International Journal of Management Education*, 15(1), 2017, 84-97.
- [8] R. A. B. Solmaz, N. Kara, and Kartal, O. The Importance of Graphology in Determining of the Managerial Qualities of the Future Women Leaders within the Z Generation: A Research Done On International Business Management Students of Coventry University. *European Journal of Interdisciplinary Studies*, 3(3), 2017, 98-102.
- [9] F. Alam, M. Dandgavhal, I. Naik, B. Pujari, and G. S. Navale, Employability Analysis of Person. *Mukt Shabd Journal*, 9(6), 2020, 169–17.
- [10] A. Bhardwaj and S. Sharma. (2021). Analysing the Psychological Condition of Pilots Through Computer Aided Graphology. 11th International Conference on Cloud Computing, Data Science & Engineering (Confluence), 438–442.