HANDWRITING YONDER RELIGION: A STUDY OF HANDWRITING ANALYSIS AMONG HINDUS AND MUSLIMS OF LUCKNOW, UTTAR PRADESH

Forensic Science

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ABSTRACT

The world is moving towards digitalisation and technology is advancing, but handwriting remains persistent and is still maintaining its place when it comes to recording information, noting down points, mode of communication in day to day life. Writing is a complex act and is a highly developed skill. Variation in handwriting is foremost principle of handwriting. This paper investigated English handwriting characteristics of Hindus and Muslims in Lucknow, Uttar Pradesh, India. Since English is not a primary language of the nation all of them have learned English as a second language. 174 exemplars were collected from the students of different colleges and Universities across Lucknow city of age group 18 to 24 years. It is an approach to identify the writer and assists in Forensic document examination.

KEYWORDS

Document examination, English characteristic features, Hindus and Muslims, Forensic Document

INTRODUCTION

Writing is a continuous or flowing task. There are apparent interruptions at word boundaries, but in many cases the pen movement may be continuous and uninterrupted, although not recorded as an inked line. Handwriting is very personal and is an individual trademark of personality. It is one of the most powerful tools of communication and expression available for human mind. Each person has their own unique style of handwriting. As no two people are exactly alike; similarly, no two people have alike characters combination of writing. A person's handwriting is like that person's fingerprints: people might be able to copy it, but never write it in an identical way and may be that is main reason that signature is still regarded as legal binding on documents of all types even in the age of technology and digitalisation.

Morris (2000) explained how an individual develops writing skills-Infant learns to clasp or grasp objects. Pre-schoolers learn random arm movements and using fingers while holding crayons. Youngsters learn colouring within pictures while manipulating the crayons with finger, wrists and arm movements. Young student learns to make individual letter by drawing one line at a time. A preprinted set of model letter forms, referred as writing system or copybook is provided to student and has to follow teacher's instruction to draw individual letters. Older students learn to connect individual letters while maintaining legibility. This requires practice and over time the act of writing and connecting letters becomes habitual. More skilful writer develops a series of combined finger, wrist and arm movements usually associated with graphic maturity. At this level an individual establishes a pattern of movements required for making letter shapes, connecting strokes, and other writing movements repeatedly. Harrison (1996) refers this concept as the writer's master pattern.

Writing becomes automatic to the point where the operation not only requires almost no conscious direction but is frequently beyond the control of the mind or the hand. This is evident when someone tries unsuccessfully to disguise his or her handwriting. The habits are so ingrained that the writer cannot eliminate all the characteristics comprising his or her writing style. (Koppenhaver, 2007) An individual's writing changes over his lifetime. The most obvious changes take place from childhood to adolescence. By the age of 18 an individual has developed the graphic maturity and then each character are executed subconsciously. The penmanship taught in schools influences handwriting. Handwriting is also influenced by physiology, training and other behavioural factors. (Srihari et al:2008)

Every person who has developed the handwriting has adopted certain peculiarities in the formation of letters unconsciously. There are many peculiarities in handwriting like shape of letter example the roundedness or sharpness, regular or irregular spacing, slant slope, size, rhythm, margin, pen lifts.

This paper presents an analysis method of English handwritten characters among males and females of two religious groups i.e. Hindus and Muslims in Lucknow, Uttar Pradesh.

Material and Methods

A total of 174 exemplars was collected from the university students of different colleges in Lucknow. Three were excluded because of insufficient information. Out of remaining 171, 95 exemplars are of Hindus (males-44; females-51) and 79 of Muslims (males-33; females-43). The inclusion criteria for the study was any university attending student of the age group 18 to 24 years were included given that they can read and write English language. Students under any influence of drug or alcohol, students of religion other than Hindu & Muslim and having any deformity were excluded.

A standard document in English "**The London Letter**" was copied by each participant and was to write the paragraph in his/her natural handwriting on plain paper. They were allowed to use the pen of their own choice. In case the writing instrument (pen) was not available with the subject, it was provided to them. Subjects were asked to sit on a desk available at the college while writing. In addition, the subjects were asked to sign the consent form and fill the Proforma that encodes general information like- Name, Age, Sex, Religion, Caste, Handedness, College, Education Qualification, Medium of Education.

Each exemplar was analyzed to study 19 characteristic features of English handwriting (Table 1). These characteristics or features were used to distinguish the handwriting features among the two religious groups based on sex. On the basis of handwriting patterns obtained, these features were categorized into different types. The analysis is done using 'Conting' and 'SPSS 16' software.

Table 1: Characteristic features of English handwriting that are analyzed.

S.No.	Handwriting Features	Types
1.	Style of Allograph	i. Cursive ii. Manuscript iii. Composite
2.	Spacing	i. Well Spaced ii. Badly Spaced iii. Wide Spaced iv. Closely Spaced
3.	Writing Movement	i. Copybook ii. Angular iii. Garland iv. Arcade v. Thread
4.	Lowercase "z"	i. Copybook ii. Cursive
5.	Lowercase "g"	i. Close Loop ii. Open Loop
6.	Lowercase "p"	i. Infra Linear ii. Double Length
7.	Uppercase "L"	i. Copybook ii. Lower Loop/Wave iii. Double Loop iv. Upper Loop

8.	t-bar Location	i. ii. iii. iv.	Above Top Middle Bottom
9.	t-bar Size	i. ii. iii.	Horizontal Ascending Descending
10.	t-bar Shape	i. ii.	Straight Wavy
11.	t-bar and Stem Connection	i. ii.	Connected Disconnected
12.	i-Dot Place	i. ii. iii.	Pre Placed Above Stem Post Placed
13.	i-Dot Position	i. ii. iii.	High Normal Close
14.	j-Dot Place	i. ii. i.	Pre Placed Above Stem Post Placed
15.	j-Dot Position	i. ii. iii.	High Normal Close
16.	Numeral "2"	I. ii. iii.	Copybook Lower Loop Double Loop
17.	Numeral "4"	i. iii.	Non Printed Printed
18.	Numeral "7"	i. ii.	With Bar Without Bar
19.	Numeral "8"	i. ii.	Two Circled Continuous

RESULT

Table 2: Distribution of Handedness

SEX	Handedness				Total
	Right	%	Left	%	
Male	69	44.51	8	50.00	77
Female	86	55.49	8	50.00	94
Total	155	100.00	16	100.00	171

90.64% of the individuals in the focus group were found to be right-handed while 9.36% were left-handed. Chi-square test is applied to test the variations in the characteristic features showed in Table 1 and showed no significant difference in any of the features when males and females of Hindus-Muslims were compared. Table 3,4,5,6 and 7 shows the frequency and statistical results of the 19 mentioned features.

Table 3: Distribution of Characteristic Features of English Handwriting among Hindus and Muslims

S. No.	Characters		Males		Females	
			Hindus	Muslims	Hindus	Muslims
1.	Style of Allograph	Cursive	16	9	17	17
		Manuscript	13	14	19	17
		Composite	15	10	15	9
	Total		44	33	51	43
			$\chi^2=1.46$; df=2		$\chi^2=0.94$; df=2	
2.	Spacing	Well Spaced	13	7	20	20
		Badly Spaced	7	9	4	6
		Wide Spaced	6	4	3	2
		Closely Spaced	18	13	24	15
		Total	44	33	51	43
			$\chi^2=1.72$; df=3		$\chi^2=2.01$; df=3	
3.	Writing Movement	Copybook	23	15	30	20
		Angular	6	8	7	5
		Garland	3	2	4	1
		Arcade	12	7	10	17
		Thread	0	1	0	0
		Total	44	33	51	43
			$\chi^2=2.98$; df=4		$\chi^2=5.31$; df=3	

Table 4: Distribution of different Types of Alphabets used among Hindus and Muslims

S. No.	Characters		Males		Females	
			Hindus	Muslims	Hindus	Muslims
1.	Lowercase "z"	Copybook	26	18	39	29
		Cursive	17	15	12	14
		Total	44	33	51	43
			$\chi^2=0.27$; df=1		$\chi^2=0.65$; df=1	
2.	Lowercase "g"	Close Loop	33	24	37	30
		Open Loop	11	9	14	13
		Total	44	33	51	43
			$\chi^2=0.05$; df=1		$\chi^2=0.09$; df=1	
3.	Lowercase "p"	Infra linear	29	23	19	16
		Double Length	15	10	32	27
		Total	44	33	51	43
			$\chi^2=0.12$; df=1		$\chi^2=0.00$; df=1	
4.	Uppercase "L"	Copybook	36	30	36	27
		Lower Loop	6	2	14	12
		Double Loop	2	0	1	3
		Upper Loop	0	1	0	1
		Total	44	33	51	43
			$\chi^2=3.96$; df=3		$\chi^2=2.78$; df=3	

Table 5: Distribution of different forms and types of "t-Bar" among the subjects

S. No.	Characters		Males		Females	
			Hindus	Muslims	Hindus	Muslims
1.	t-Bar Location	Above	0	1	0	0
		Top	3	2	3	5
		Middle	39	27	45	37
		Bottom	2	3	3	1
		Total	44	33	51	43
			$\chi^2=2.05$; df=3		$\chi^2=1.61$; df=2	
2.	t-Bar Size	Long	2	2	1	5
		Medium	27	23	34	24
		Short	9	6	10	8
		Left	1	0	0	1
		Right	5	2	6	5
		Total	44	33	51	43
			$\chi^2=1.67$; df=4		$\chi^2=5.06$; df=4	
3.	t-Bar Shape	Straight	31	25	36	32
		Wavy	13	8	15	11
		Total	44	33	51	43
			$\chi^2=0.27$; df=1		$\chi^2=0.17$; df=1	
4.	t-Bar & Stem Connection	Connected	44	33	1	2
		Disconnected	0	0	50	41
		Total	44	33	51	43
			-		$\chi^2=0.58$; df=1	

Table 6: Distribution of different types and formations of the "tittle" or "dot" placed above 'i' and 'j' among Hindus and Muslims

S. No.	Characters		Males		Females	
			Hindus	Muslims	Hindus	Muslims
1.	i-Dot Place	Pre Placed	3	3	3	0
		Above	34	19	37	36
		Post Placed	7	11	11	7
	Total		44	33	51	43
			$\chi^2=3.64$; df=2		$\chi^2=3.25$; df=2	
2.	i-Dot Position	High	2	2	2	1
		Normal	38	30	43	30
		Close	4	1	6	12
	Total		44	33	51	43
			$\chi^2=1.20$; df=2		$\chi^2=3.99$; df=2	
3.	j-Dot Place	Pre placed	6	2	4	3
		Above	17	19	28	22
		Post Placed	11	7	9	7
	Total		44	33	51	43
			$\chi^2=2.44$; df=2		$\chi^2=0.00$; df=2	

4.	j-Dot Position	High	1	1	0	0
		Normal	25	18	28	26
		Close	8	9	13	6
	Total		34	28	41	32
			$\chi^2=0.62$; df=2		$\chi^2=5.09$; df=2	

Table 7: Distribution of different patterns in the formation of Numerals

S. No.	Characters		Males		Females	
			Hindus	Muslims	Hindus	Muslims
1.	Numeral "2"	Printed	26	25	32	26
		Lower Loop	4	4	8	13
		Double Loop	12	4	9	4
	Total		42	33	49	43
			$\chi^2=2.98$; df=2		$\chi^2=5.09$; df=2	
2.	Numeral "4"	Non Printed	28	24	30	31
		Printed	15	9	21	9
	Total		43	33	51	40
			$\chi^2=1.20$; df=2		$\chi^2=3.99$; df=2	
3.	Numeral "7"	With Bar	32	25	36	29
		Without Bar	10	8	13	14
	Total		42	33	49	43
			$\chi^2=0.00$; df=1		$\chi^2=0.40$; df=1	
4.	Numeral "8"	Two Circled	3	2	1	2
		Continuous	40	31	50	41
	Total		43	33	51	43
			$\chi^2=0.03$; df=1		$\chi^2=0.55$; df=1	

DISCUSSION AND CONCLUSION

The present study was conducted to see the variation in handwriting patterns and features among the Hindus and Muslims of Lucknow city of Uttar Pradesh. After observing and analyzing 19 features of English Handwriting, interestingly, no significant differences among Hindus & Muslims is found when males and females of each religious group is compared. Following the outcomes of our study it can be stated that Handwriting is an individualistic art and characteristic, religion doesn't have any effect in the way a person writes.

According to this research, finding similarities among a specific group or religion of people and then comparing it to another group or religion won't yield much in Indian context as English has come to India as a part of colonial setup. It is not intended to refer it as an 'open for all' kind of linguistic acquisition for people in India during the pre-independence times. The lack of difference among the two groups may be because of the similar pattern followed by the schools or teachers while teaching the English discipline during the initial developing stage of English writing habits. Therefore, it might be the reason for having no variation among two contrasting religious groups in an Indian society.

Since the sample of the study is small, we cannot generalize the finding to all population. For generalizing such statements, one has to collect a large data and have to examine more traits and characteristics features of English handwriting.

Through this study we found there is no relationship between handwriting and religion therefore; community or a group or religion does not differentiate handwriting. Further this study states that handwriting is an individualistic and unique feature which evolves independently among individuals. Adding to the found result, a forensic examiner can detect the forgery in handwriting or identify the writer of any document with having a great expertise in forensic document examination.

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