

# Fountain Pen - Instrument of Efficient Writing

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**Abstract:** Many people wonder why they should use a fountain pen. Fountain pens offer an expression to a person's handwriting. Through a change in pressure of the pen to the paper, you can achieve a variety of lines, from thick to thin. The ballpoint and rollerball will not give you this variety of line. Many people also believe that fountain pens improve their penmanship. The basic nature of a fountain pen forces the user to write a little more slowly, hence creating neater, more legible handwriting. Unlike a ballpoint or rollerball pen, a fountain pen allows for more choices when it comes to ink colors and shades. This research paper dwells into the study to understand the pleasure of writing with fountain pen and its various impacts on the writers like the ease and comfort of writing, speed of writing, concentration level while writing with the fountain pens. The study collects the response from both students and teachers about their experience of writing with a fountain pen. With the help of various statistical tools we have come to know a lots of new dimensions of magic of writing with the fountain pens.

**Keywords:** Fountain pen, hand writing.

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## I. INTRODUCTION

A fountain pen is a pen with a nib that contains a reservoir of colored liquid ink. The pen draws ink from the reservoir through a feed to the nib and deposits it on paper via a combination of gravity and capillary action. Filling the reservoir with ink may be achieved manually, via the use of a Pasteur pipette also known as eyedropper or syringe that is a modern way of filling ink, or via an internal filling mechanism which creates suction to transfer ink directly through the nib into the reservoir. Some pens employ removable reservoirs in the form of pre-filled ink cartridges.

The fountain pen was invented by Waterman in 1884. Inspired by the old tradition of the feather quill, Waterman came up with a way to use the concept without having to be seated at a desk to keep the pen inked. The fountain pen became a staple of society until the ballpoint pen was invented in 1947. This limited the sale of fountain pens across the world. The fountain pen has recently made resurgence in popularity mainly due to technological advances. Many people are now longing for the nostalgia of the hand written note. Nothing makes you feel better than to receive the personal touch of a note that someone took the time to sit and write.

### Design of a Fountain Pen

When talking about the design of a fountain pen three major components comes to mind

1. Nib
2. Barrel &
3. Ink

**Nib** is the part of a quill, fountain pen which comes into contact with the writing surface in order to deposit ink. Different types of nibs vary in their purpose, shape and size, as well as the material from which they are made. The broad nib, also called broad-edge, is the oldest of the nib types. It is rigid and has a flat edge. The pen is usually held at a constant angle to the horizontal surface as different nib angles work for different surfaces. Thick and thin strokes are created by varying the direction of the stroke. Many writing styles have developed over the centuries with the broad nib, including the medieval Uncial, Black letter and Carolingian minuscule scripts, the Italic Hand of the Renaissance, and more recently Edward Johnston's Foundational Hand, developed in the early 20th century. Further gold plating provides favorable wet ability, which is the ability of a solid surface to reduce the surface tension of a liquid in contact with it such that it spreads over the surface. Gold and most steel and titanium nibs are tipped with a hard, wear-resistant alloy that typically includes metals from the platinum group. These metals share qualities of extreme hardness and corrosion resistance. The tipping material is often called "iridium", but there are few, if any, nib or pen manufacturers that used tipping alloys containing iridium metal since the mid 1950s. Although the most common nibs end in a round point of various sizes (extra fine, fine medium, broad), various other nib shapes are available. Examples of this are oblique, reverse oblique, stub, italic and 360-degree nibs. Flexibility is given to nibs in several ways so that it can sustain varying pressure style writings.



**Barrel** of Fountain pen is the body which houses the reservoir of ink, or in some cases the barrel itself is the reservoir. The reservoirs of the earliest fountain pens were mostly filled by eyedropper. This was a cumbersome and potentially messy process, which led to the commercial development of alternative methods that quickly dominated the industry. The Conklin crescent filler, introduced c. 1901, was one of the first mass-produced self-filling pen designs. The crescent filling system employs an arch-shaped crescent attached to a rigid metal pressure bar, with the crescent portion protruding from the pen through a slot and the pressure bar inside the barrel. In 1907, Walter A. Shaffer patented the Lever filler, using a hinged lever set into the pen barrel which pressed down onto a bar which in turn compressed the rubber sac inside, creating a vacuum to force ink into the pen. Introduced in 1912, this innovation was rapidly imitated by the other major pen makers. Parker introduced the button filler, which had a button hidden beneath a blind cap on the end of the barrel; when pressed, it acted on a pressure bar inside to depress the ink sac.

**Ink** intended for use with fountain pens is water-based. These inks are commonly available in bottles. Plastic cartridges came into use in the 1960s, but bottled inks are still the mainstay for most fountain pen enthusiasts. Bottled inks usually cost less than an equivalent amount in cartridges and afford a wider variety of colors and properties. Because fountain pens operate on the principle of capillary action, ink for them is almost exclusively dye-based. A form of ink that predates fountain pens by centuries is Iron gall ink. This blue-black ink is made from iron salts and tannic acids from vegetable sources. Prior to the ready availability of manufactured ink, iron gall ink was often home made. Most fountain pen manufacturers also provide a brand of ink. For example, Parker sells 'Quink', and Schaeffer sells 'Skrip', while manufacturers like Waterman, Lamy, Pelikan, and MontBlanc sell ink under the same branding as their fountain pens. The recent resurgence of fountain pen use has also created a market for companies that specialize in ink, such as the British company Diamine and the American company Noodler's Ink. These manufacture ink in dozens of different colors.

### **Present Day Use of Fountain Pens**

From the earlier years the ink pens or fountain pens have been in used as primary writing instruments by all sections of society. In present day India still schools are practicing the use of fountain pens by their students as it has various profitable reasons behind it. Some say that writing with fountain pens improves the hand writing, some have the understanding that fountain pens actually make the hand posture correct and makes the writer understand the correct pressure to be utilized for correct writing. Not only schools, but, elderly people who have been using this instrument for decades are still in the habit of using fountain pens regularly. Also there is a section of society who loves to collect such wonderful pieces of technology and collector's item. Big bosses of multinational corporations also use fountain pens for signing of business deals or to put it in other way fountain pen have also become a symbol of class and status in the society.

This section of society who uses fountain regularly is our area of sampling for this research work.

## **II. LITERATURE REVIEW**

Busby, Charles in their paper "The Forgotten Fountain Pen: The historical significance of the fountain pen in twentieth-century American society", addresses the adoption, popularity, decline, and revival of the fountain pen in American culture and society over the twentieth century. It examines how the World Wars and Great Depression interacted to influence fountain pen design and production; how the ballpoint and characteristics of convenience and disposability threatened the fountain pen's continued survival; how the act of writing changed with new writing implements, like ballpoints, typewriters, and computers; and how the "analog revolution" of the late 1980s helped revitalize fountain pen collecting, use, and manufacturing. It concludes that the fountain pen operated variously over the twentieth century as a writing tool, a status icon, and a collectible, adapting to new contexts and competing with newer writing instruments. The fountain pen's continued

manufacture in the twenty first century illustrates that its appeal and writing properties are uniquely valued despite its more efficient competitors.

Marcos Ferasso, Ivan Antonio Pinheiro, Christine Da Silva Schröder in their research paper “Strategies of innovation in an ancient business: cases of the fountain pen industry”, analyses the different innovation strategies adopted by the fountain pen industry to survive to the attack of ballpoint pen spread. To meet this objective, case studies of Waterman, MontBlanc and Parker companies are discussed. The data, collected from secondary sources, indicate that the fountain pen industry had a great reduction in their sales and later stabilized at a lower level by stressing their positioning at the luxury goods market, but also adopting and transforming the new ballpoint technology. The analysis of this case leads to the conclusion that the ballpoint pen is truly a good example of Christensen's disruptive technology because it contains all of Schumpeter's types of innovation.

Abhijit P Suryavanshi and Min-Feng Yu in their paper “Electrochemical fountain pen nanofabrication of vertically grown platinum nanowires” talks about Local electrochemical deposition of freestanding platinum nanowires was demonstrated with a new approach—electrochemical fountain pen nanofabrication (ec-FPN). The ec-FPN exploits the meniscus formed between an electrolyte-filled nanopipette (‘the fountain pen’) and a conductive substrate to serve as a confined electrochemical cell for reducing and depositing metal ions. Freestanding Pt nanowires were continuously grown off the substrate by moving the nanopipette away from the substrate while maintaining a stable meniscus between the nanopipette and the nanowire growth front. High quality and high aspect-ratio polycrystalline Pt nanowires with diameter of ~150 nm and length over 30 µm were locally grown with ec-FPN. The ec-FPN technique is shown to be an efficient and clean technique for localized fabrication of a variety of vertically grown metal nanowires and can potentially be used for fabricating freeform 3D nanostructures.

#### **Objectives of the Study**

Following are the main objectives of the research:

1. To understand if there any impact on writing speed while writing with fountain pen.
2. To understand if there any impact on hand writing quality while writing with fountain pen.
3. To understand if there any impact on comfort level while writing while using a fountain pen.
4. To understand if there any impact on concentration on writing while using a fountain pen.

### **III. RESEARCH METHODOLOGY**

For this research paper the researcher has collected the response of people who regularly use fountain pens in their daily life, these majorly comprises of School Students and teachers, who have been using fountain pens for more than one year. The researcher wish to make better understanding of following key areas associated with writing with fountain pens i.e. Quality of writing with fountain pen; Writing speed; comfort level while writing with fountain pen; concentration level while writing with fountain pens; and amount of text written per day normally.

Sampling Unit	:	Students & Teachers at Moradabad Schools
Sample size	:	500 Fountain Pen Users
Sampling Area	:	Moradabad City
Research Type	:	Descriptive & Analytical Research
Analysis Tools Used	:	Paired Sample T Test

#### **Hypothesis**

Following are the main Hypothesis of the research:

- H1 : There is a significant increase in persons writing speed while writing with fountain pen.  
H01 : There is a no such significant increase in persons writing speed while writing with fountain pen.  
H2 : There is a significant improvement in persons writing quality while writing with fountain pen.  
H02 : There is a no such significant improvement in persons writing quality while writing with fountain pen.  
H3 : There is a significant increase in persons concentration while writing with fountain pen.  
H03 : There is a no such significant increase in persons concentration while writing with fountain pen.  
H4 : There is a significant amount of comfort while writing with fountain pen.  
H04 : There is a no such significant amount of comfort while writing with fountain pen.

### **IV. ANALYSIS**

Upon analyzing the data collected from various students and Teachers we started analyzing it by implementing Paired Sample T-Test. Using SPSS we put to test out Hypothesis by identifying if statistically our Null Hypothesis is Rejected or Accepted.

By putting the collected data in to the SPSS module we found following output tables:

**Table 1 : Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Speed	3.32	500	.691	.031
	SpeedAfter	4.30	500	.638	.029
Pair 2	Quality	3.12	500	.621	.028
	QualityAfter	4.39	500	.581	.026
Pair 3	Concentration	3.31	500	.703	.031
	ConcentrationAfter	4.33	500	.618	.028
Pair 4	Comfort	3.15	500	.622	.028
	ComfortAfter	4.42	500	.569	.025

**Table 2 : Paired Samples Correlations**

		N	Correlation	Sig.
Pair 1	Speed & SpeedAfter	500	-.009	.838
Pair 2	Quality & QualityAfter	500	-.406	.000
Pair 3	Concentration & ConcentrationAfter	500	-.027	.549
Pair 4	Comfort & ComfortAfter	500	-.403	.000

**Table 3 : Paired Samples Test**

	Paired Differences	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
					Pair 1	Speed - SpeedAfter			
Pair 2	Quality - QualityAfter	-1.264	1.008	.045	-1.353	-1.175	-28.036	499	.000
Pair 3	Concentration - ConcentrationAfter	-1.022	.948	.042	-1.105	-.939	-24.098	499	.000
Pair 4	Comfort - ComfortAfter	-1.264	.998	.045	-1.352	-1.176	-28.316	499	.000

→ Testing of Null Hypothesis  $H_{01}$

$H_1$  : There is a significant increase in persons writing speed while writing with fountain pen.

$H_{01}$  : There is a no such significant increase in persons writing speed while writing with fountain pen.

Referring to Table 1 it is clear that mean score of given by the respondent on 5 point likert scale towards Speed of writing with other pens is 3.32 whereas that mean score of given towards Speed of writing with Fountain pens is 4.30, which indicates positive response towards the Fountain pen.

Referring to Table 2 it is clear that correlation between the Speed of writing with Fountain pen and writing with other pens is (-0.009) which signifies very low degree of negative correlation.

Now Referring to Paired Samples Test in Table 3 we have  $t = -23.277$  and  $Sig. = 0.00$  (which is under the acceptable value of 0.05), this signifies that the Null Hypothesis ( $H_{01}$ ) stands Rejected.

**It means that there is a significance increase in person's writing speed while writing with fountain pen.**

→ Testing of Null Hypothesis  $H_{02}$

$H_2$  : There is a significant improvement in persons writing quality while writing with fountain pen.

$H_{02}$  : There is a no such significant improvement in persons writing quality while writing with fountain pen.

Referring to Table 1 it is clear that mean score of given by the respondent on 5 point likert scale towards Speed of writing with other pens is 3.12 whereas that mean score of given towards Speed of writing with Fountain pens is 4.39, which indicates positive response towards the Fountain pen.

Referring to Table 2 it is clear that correlation between the Speed of writing with Fountain pen and writing with other pens is (-0.406) which signifies moderate degree of negative correlation.

Now Referring to Paired Samples Test in Table 3 we have  $t = -28.036$  and  $Sig. = 0.00$  (which is under the acceptable value of 0.05), this signifies that the Null Hypothesis ( $H_{02}$ ) stands Rejected.

**It means there is a significant improvement in person's writing quality while writing with fountain pen.**

→ Testing of Null Hypothesis  $H_{03}$

$H_3$  : *There is a significant improvement in persons concentration while writing with fountain pen.*

$H_{03}$ : *There is a no such significant improvement in persons concentration while writing with fountain pen.*

Referring to Table 1 it is clear that mean score of given by the respondent on 5 point likert scale towards Speed of writing with other pens is 3.31 whereas that mean score of given towards Speed of writing with Fountain pens is 4.33, which indicates positive response towards the Fountain pen.

Referring to Table 2 it is clear that correlation between the Speed of writing with Fountain pen and writing with other pens is (-0.027) which signifies very low degree of negative correlation.

Now Referring to Paired Samples Test in Table 3 we have  $t = -24.098$  and  $Sig. = 0.00$  (which is under the acceptable value of 0.05), this signifies that the Null Hypothesis ( $H_{03}$ ) stands Rejected.

***It means there is a significant improvement in person's concentration while writing with fountain pen.***

→ Testing of Null Hypothesis  $H_{04}$

$H_4$  : *There is a significant improvement in writing comfort while writing with fountain pen.*

$H_{04}$ : *There is a no such significant improvement in writing comfort while writing with fountain pen.*

Referring to Table 1 it is clear that mean score of given by the respondent on 5 point likert scale towards Speed of writing with other pens is 3.15 whereas that mean score of given towards Speed of writing with Fountain pens is 4.42, which indicates positive response towards the Fountain pen.

Referring to Table 2 it is clear that correlation between the Speed of writing with Fountain pen and writing with other pens is (-0.403) which signifies moderate degree of negative correlation.

Now Referring to Paired Samples Test in Table 3 we have  $t = -28.316$  and  $Sig. = 0.00$  (which is under the acceptable value of 0.05), this signifies that the Null Hypothesis ( $H_{04}$ ) stands Rejected.

***It means there is a significant improvement in writing comfort while writing with fountain pen.***

## V. CONCLUSION

No doubt fountain pens are the things of past but there is a section of population which has kept the art of writing with fountain pen alive. Although with advancement in science and technology we have been provided with new breed of writing instruments like Ball pens, Gel pens which are cheaper and more economical to produce and use. But with this research paper we still find that fountain pens holds superiority in certain aspects of writing like Speed, Quality of Hand writing, Better Concentration while writing and Comfortable hold while writing. The researcher wishes to perfume mo research towards improvement of Fountain Pens so as to keep this legendary writing instrument in its rightful place among all others.

## VI. REFERENCES

- [1] "The Forgotten Fountain Pen: The historical significance of the fountain pen in twentieth-century American society", Busby, Charles
- [2] "Strategies of innovation in an ancient business: cases of the fountain pen industry", Marcos Ferasso, Ivan Antonio Pinheiro, Christine Da Silva
- [3] "Electrochemical fountain pen nanofabrication of vertically grown platinum nanowires", Abhijit P Suryavanshi and Min-Feng Yu
- [4] "How the Ballpoint Pen Killed Cursive", Josh Giesbrecht
- [5] <https://www.penaddict.com/>
- [6] <http://onfountainpens.com/pen-blogs/>
- [7] <http://www.gourmetpens.com/>