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From Pen to Keyboard: A study on the Transformation of Writing Skills in the Digital Age.

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Abstract

This study examine the impact of Digital tools on the skill of writing and on the development of cognitive skills of human beings, employing a mixed method approach, the researcher highlights how traditional skills of writing has been replaced by digital tools which many a times leads us to unpleasant findings hampering the natural skills of human beings and thereby their personality also. A survey with 175 respondents and 20 independent interviews were conducted in the various groups in India ranging from the guardians, parents of the students of primary as well as higher education, teachers of primary/higher education, banking professionals and people belonging to other service sector. The key findings reveals that though writing remains to be the favourite of many as they believe in its utility but it is hard for them to continue with it due to ease of doing things due to the evolving technologies. Furthermore, the study reveals that students/teachers/parents and other professional underwent this shift due to the need of the time and advent of new technologies. This study suggest a balance approached would be the ideal situation in the age of digitalization.

Keywords: Writing, Keyboard, Digital age, IT tools, Internet and Skills.

1. Introduction

It was once said that the best way of memorising something is to write it down. What writing does to one's memory can never be attained by oral repetition only and therefore, if you really want to remember something it is better that you make note of the same. Penning down ones thoughts not only give it permanency in documented form but it also sharpens ones skill of expression. It was because of this reason many a tine the students are advised in their schools to write what they learned. But with the advent of Information Technology and the birth of digital tools we can witness a prominent shift in the habits of individuals as they shift from writing to typing culture.

IT tools like Computers, laptops and smart phones have shrinked the world. It has brought human civilization closer. It has not only impacted the pace of globalization but has also brought a prominent shift from pens to keyboard or you may say writing to typing.

In this modern digital age many writers have confirmed the importance of writing in the development of human cognitive family. In the words of Tricia Kellher, Principal of the Stephen Perse Foundation School in Cambridge, " Handwriting is part of our civilization, it is part of the identity of our cultural and not just a tool for communication." This statement shows that writing is not only about communicating its about preservation of your culture. Writing associates closely with the spirit of civilization. From the writing of an individual we could have a fair idea about his community and culture. Writing is an effective way of moulding ones thought into words or paper. It is an individual can deeply affects not only his future but the future of entire nation. It has distinctive advantages over typing when it comes to the development of an individual.

When a person writes by hand he uses multiple regions of his brain which keep brain active and improves the power of memory retention. Writing gives an opportunity to an individual to process his thought while framing sentences that makes sense. When you write something you get a letter opportunity to understand that concept as all your brain nerves are been put into action. Writing also enhances fluency in reading as the entire process of handwriting enables you to understand the structure of a sentence. This concept building and better understanding increases the speech fluency of an individual. Not only this writing also inculcate and stimulates the creative thinking and idea generation. In brief we could say that handwriting does wonders to ones personality by enhancing his creativity, understanding and speech fluency.

Digital technology have come up with numerous novel ways that can replace writing. For example there is digital note-takers app that can take notes on your phone and iPad. Then there is digital annotator where you can list out your conference schedules and submittals. There is white board where you could draw out your thoughts, ideas and text. There is also a tool called voice notes that can take your notes from your voice directly. There are wide variety of mapping tools that let you track your characters and setting geographically around the planet. There are various browsers available online like chrome, Firefox and IE. We also have word processors include MS Word, Google Docs and fancier tools like scrivener. All these tools helps you to edit your text without losing relevant data.

2. The importance of Research

Recently, in the age of technology writing by and hands has been replaced by digital tools. Pens have been replaced by Notepads, Voice Notes, MS Word, Scrivener, Gramly and so on. Advent of digital tools have hampered traditional practice of handwriting. This study focuses on how the traditional techniques of writing can survive with the digital tools and why it is important to do so.

The importance of this research lies in the fact like writing by hand is important in the overall development of human personality. Although one cannot repair himself from the use of digital tool as it is the need of times yet the habit of writing must be retained in the students. Furthermore, this research is unique as it is based on field based approach and conceptual framework, as the study combines quantitatively and qualitative instruments to explore how this change from pen to keyboard has advanced and now it has ability of humans. This study thus contribute to the existing body of research by providing a field based study that proposes a set of strategies that can help us in maintain the balance between traditional skill and modern technology. Moreover, this research will be a valuable contribution in preserving the traditional techniques of writing.

3. Research Objectives

Primary Objective:

- To examine the impact of Keyboard usage on traditional writing skills such as handwriting, grammar and cognitive expression.

Secondary Objective:

- To analyze whether reliance on digital tools, care to correct, spell-check grammarly, affects the ability of writing.
- To assess the decline trend in students towards handwriting.
- To evaluate the effect of typing on creativity of an individual.
- To explore role of educational institutions in balancing digital and traditional writing skills.

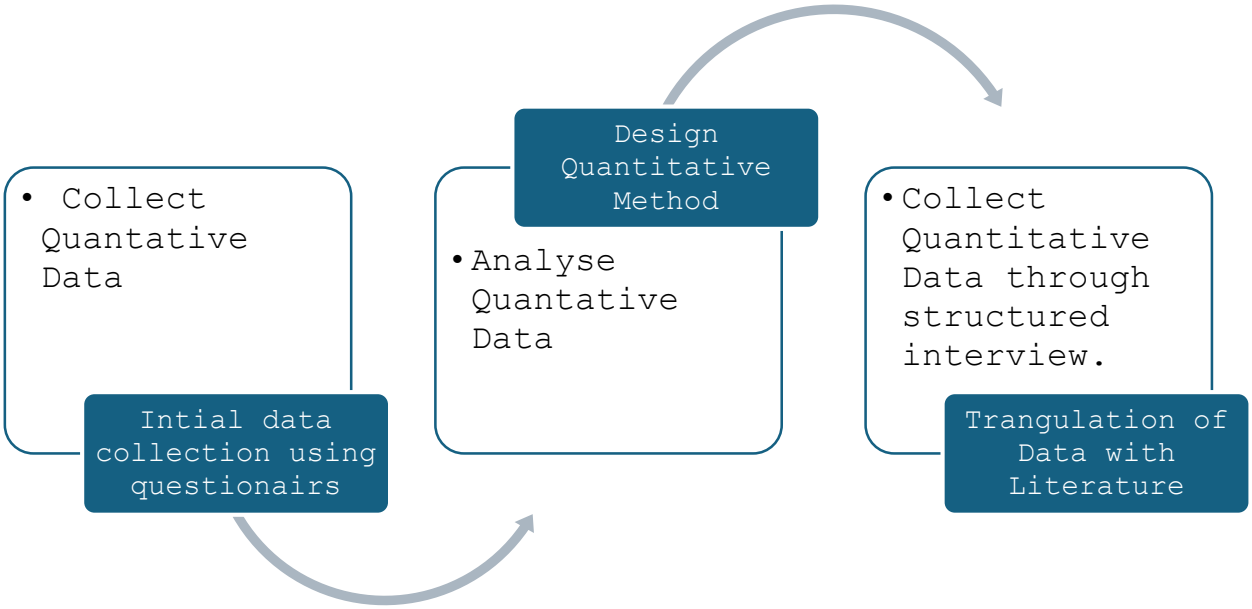
4. Methodology

In order to attain a broad range of perspective, this study employed a descriptive and analytical research design whereby a mixed method approach was adopted, with quantitative and qualitative method to facilitate data collection and analysis (Creswell & Creswell 2022). Primary data has been collected by survey and questioner method and Journal, articles, reports on digital literacy and education have been used for collection of secondary data.

In this study mixed approach comprised three stages as shown in Fig.1.0:-

(i) The collection of quantitative data, through questioners
(ii) The collection of qualitative data with a detailed interview and
(iii) The triangulation on of quantitative data and qualitative data with the review literature used for building the concept.

Explanatory sequential Mixed Method Approach.



(

Integrating data with existing literature for validation.) Figure 1.0

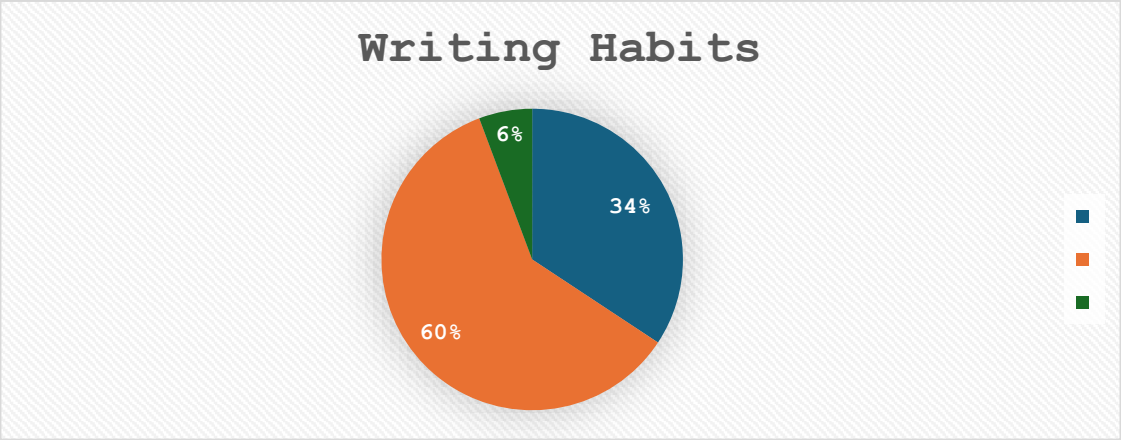
The study floated google forms to students / Professors/ professional engaged in teaching / banking/ IT sectors in writing and processing data, with the sample selected via the simple random techniques. The second study instrument comprised semi-structure interview conducted with the professional who are selected according to their experience and disposition to participate. Purposive sampling was utilized relying on the own judgement researcher to handpick participants who fit the subject criteria. Quantitative data were analyzed using AI tool Claude, applying descriptive statistics. Quantitative data were analyzed, using manual coding approach. A total of 175 people participated in the questionnaire and 20 of them participated in the semi-structured interview to allow in-depth investigation. By applying mixed-method approach more liable outcome is secured. The quantitative sample size (n=175) and the qualitative sample (n-20) were considered adequate for this
descriptive study.

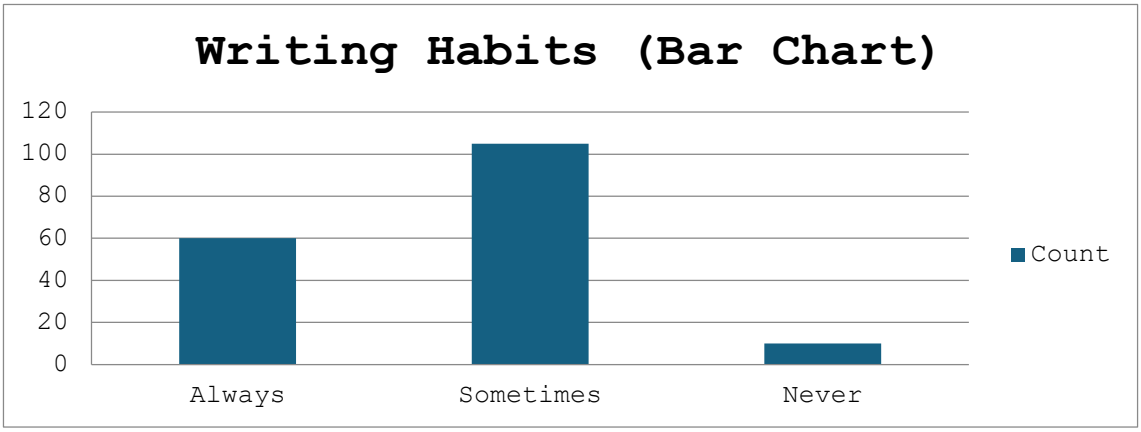
In terms of ethics, the primary consideration in this research was to be responsible, honest and ensure the confidentiality of the participants. Therefore, the complete questionnaire, interview, notes were all kept with great care and precaution to ensure participants' privacy and confidentiality. Moreover all quotation and identifiers presented in the paper have been anonymize. The research also ensures high degree reliability as the outcome listed in conclusion are based on the first hand data collected in the research by use of mixed-method approach.

5. Data Analysis

The quantitative and qualitative method was used to collect data for analysis. In quantitative method of data collection, questionnaire of 10 questions was floated among 175 respondents. The theme

of the study was to trace the 'Transition from traditional handwriting to digital writing and its impact on cognition, expression and education.





The quantitative data in Fig. 1.1. (Table 1) confirmed that the trend of writing among participants is on a decline. Out of 175 respondents 6% have admitted that they never pick pen / paper for writing; while 34.% says that they always write while 60% clearly admits that they write sometimes only. The data hereby verify that most respondents write occasionally rather than consistently. Thus, we see a decline in frequency of writing.

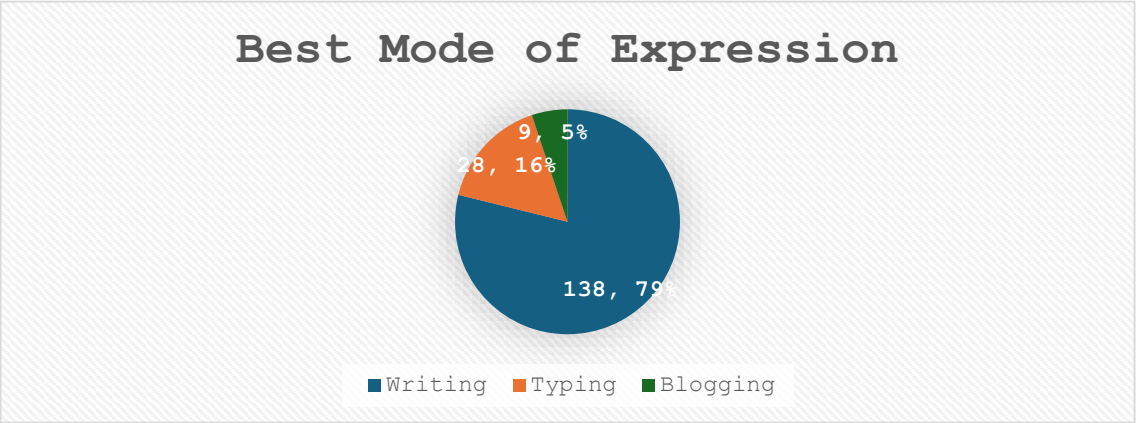


Figure 1.2 (Table 2)

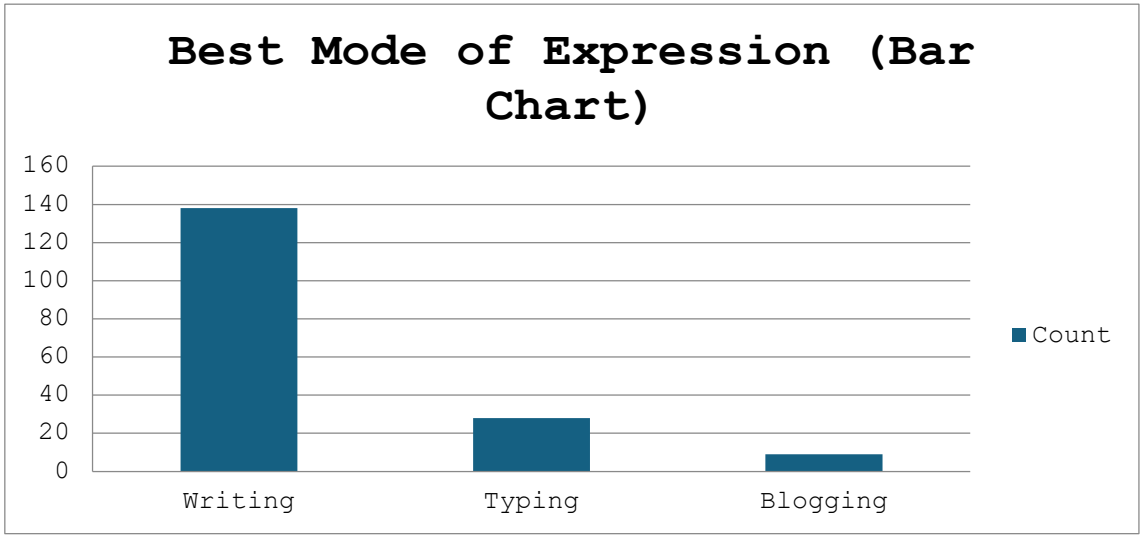
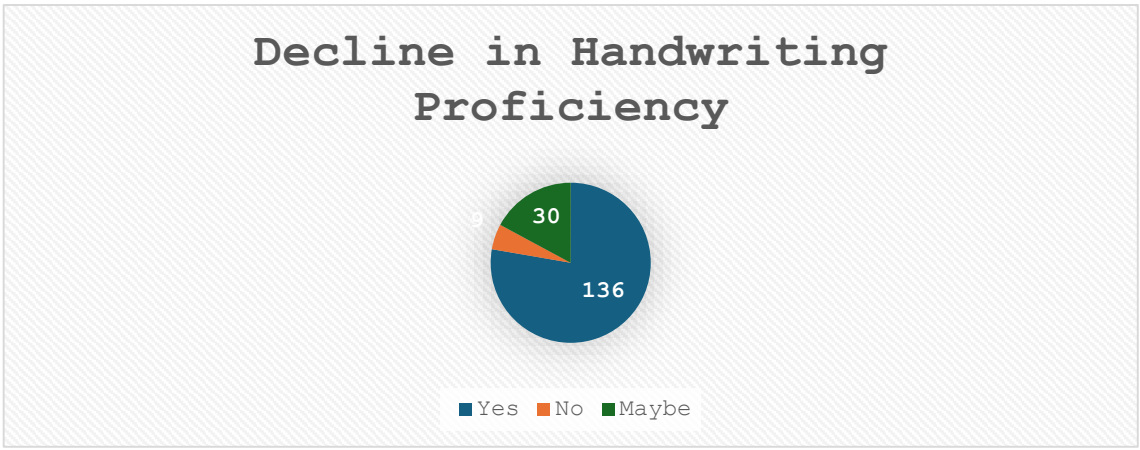


Fig. 1.2 (Table 2) showcases the preferred mode of expression. Going by respondent count a large majority consider traditional writing as the best form of expression i.e. 79%, while only 16% says that typing is a better way and only 5% admits the blogging is a better way expressing oneself. This table clearly shows that traditional writing is the best form of expression, despite increasing digital dependence.



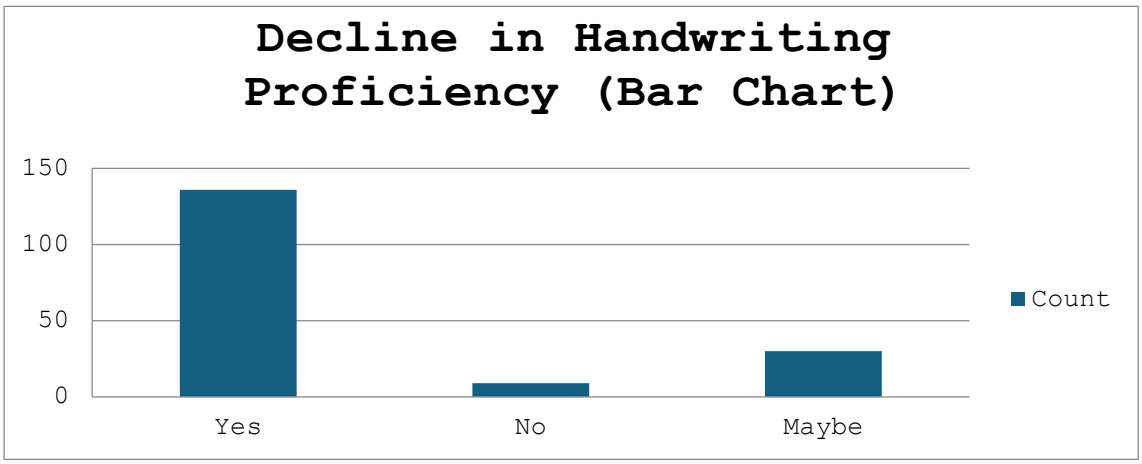
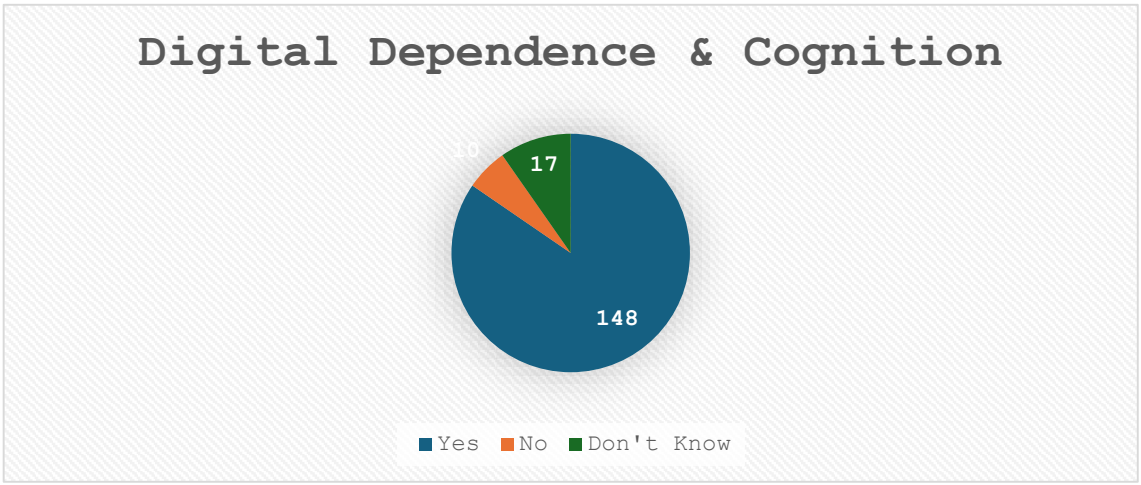


Figure 1.3 (Table 3)

In Fig. 1.3 (Table 3) it has been depicted that there is a decline in Handwriting proficiency. As out of 175 respondents 136 i.e. 77.7% of respondents had admitted that there is a decline in handwriting. While 30 i.e. 17.1 were not sure and 9 respondents i.e. 5.1% have denied such a decline. By interpreting this data we can see that there is a significant deterioration in skills of the students in the digital age.



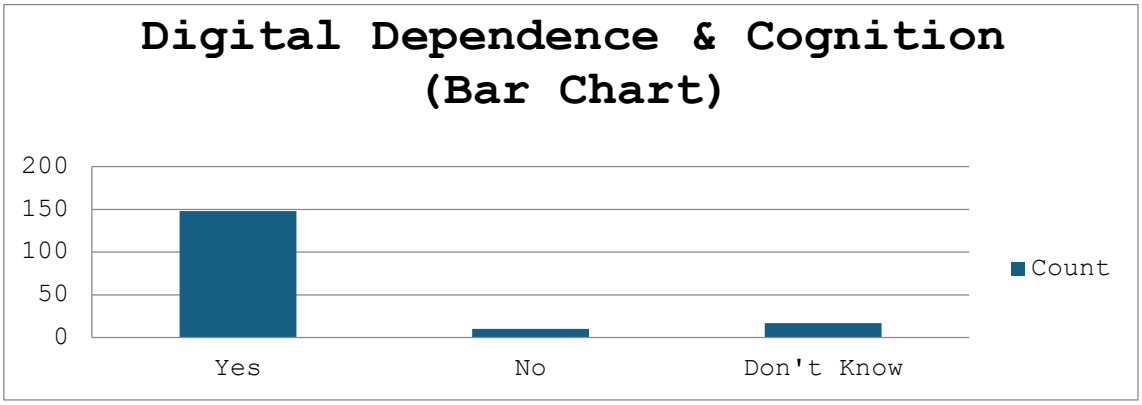


Figure 1.4 (Table 4)

Fig.1.4 (Table 4) indicates that digital devices and application providing auto-correct have impacted on cognitive engagement. Out of 175 respondents 148 respondents i.e. 84.6% have admitted that this decline is due to digital tools. While 5.7% i.e. 10 in number have denied it and 9.7% i.e. 17 have said that they don't have any idea. In present table it is clearly evident that most of the respondents feel that dependence on digital tools and auto-correct reduces active thinking and cognitive engagement during writing.

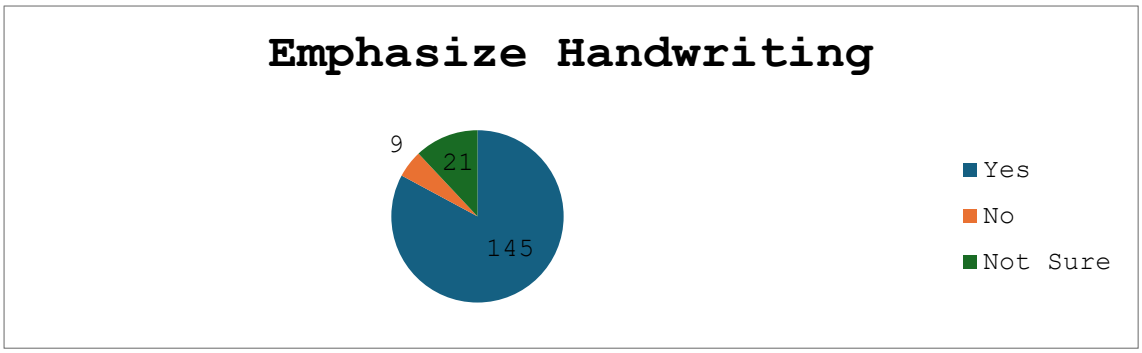
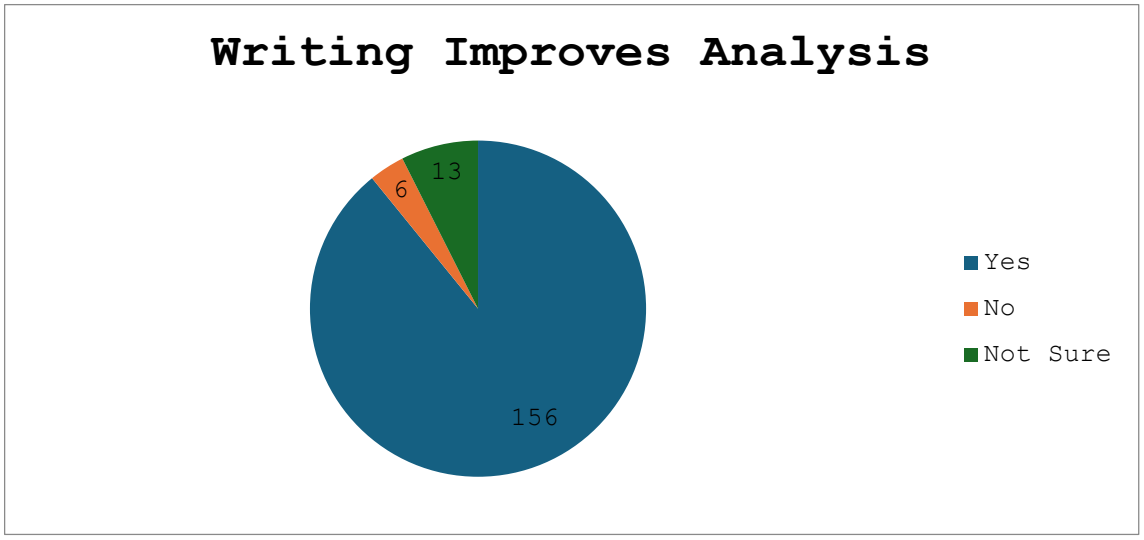


Figure 1.5 (Table 5)

Similarly Fig.1.5 (Table 5) traces the importance of handwriting in Educational Institution. Out of 175 respondents 145 respondents i.e. 82.9% have admitted that the handwriting should be the means of instruction in Educational Institution. While 9 respondents i.e. 5.1% of them gave importance to digital tools and 12.0% of respondents i.e. 21 in number were not sure about the response. In this table we can see a overwhelming majority support for retaining handwriting instruction in educational institutions despite technological advancement. Thus there was an emphasis on handwriting skills in educational institutions.



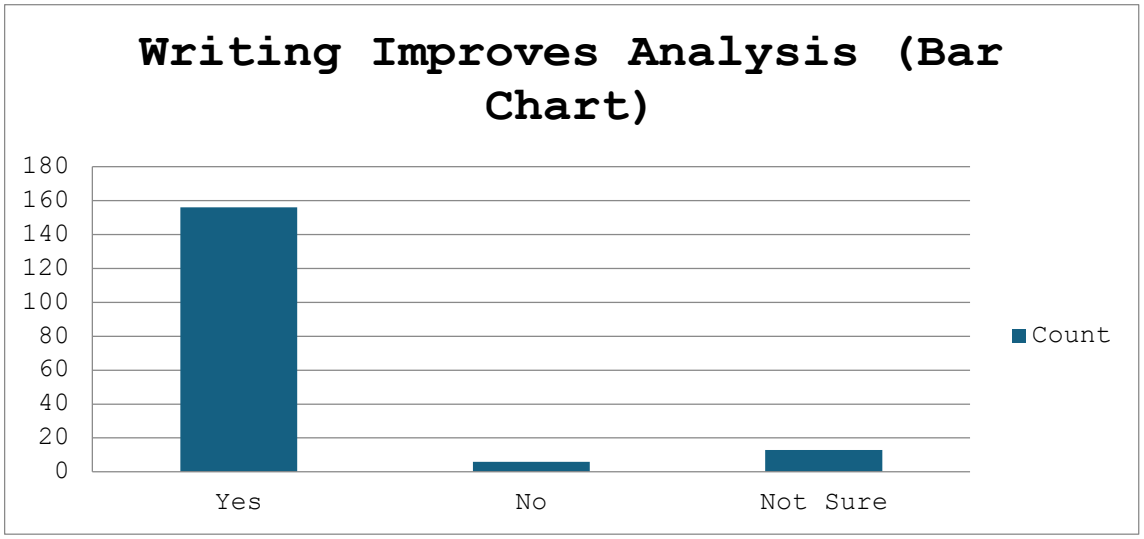
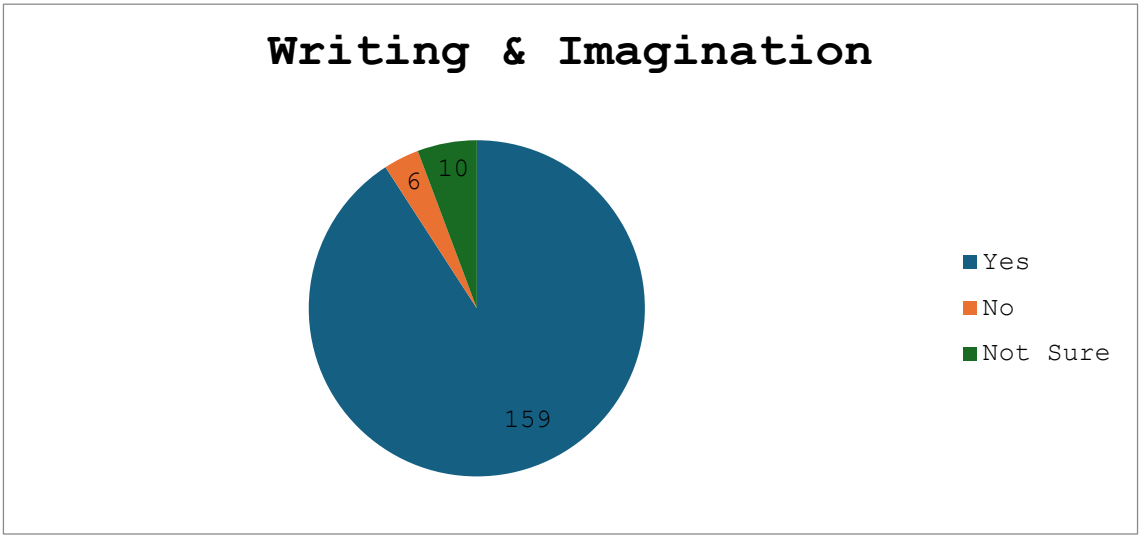


Fig. 1.6 (Table 6) & Fig. 1.7 (Table 7) clearly exhibits the fact that writing by hand improves the analytical ability & imagination of the students. Table 7 indicates that almost 156 respondents i.e. 89.1% have admitted that writing improves analytical power of an individual. 3.4% i.e. 6 respondents have denied it while 7.1% were not sure. Thus Table 7 shows that an overwhelming majority perceive writing as a tool that strengthens analytical thinking and reasoning skills.



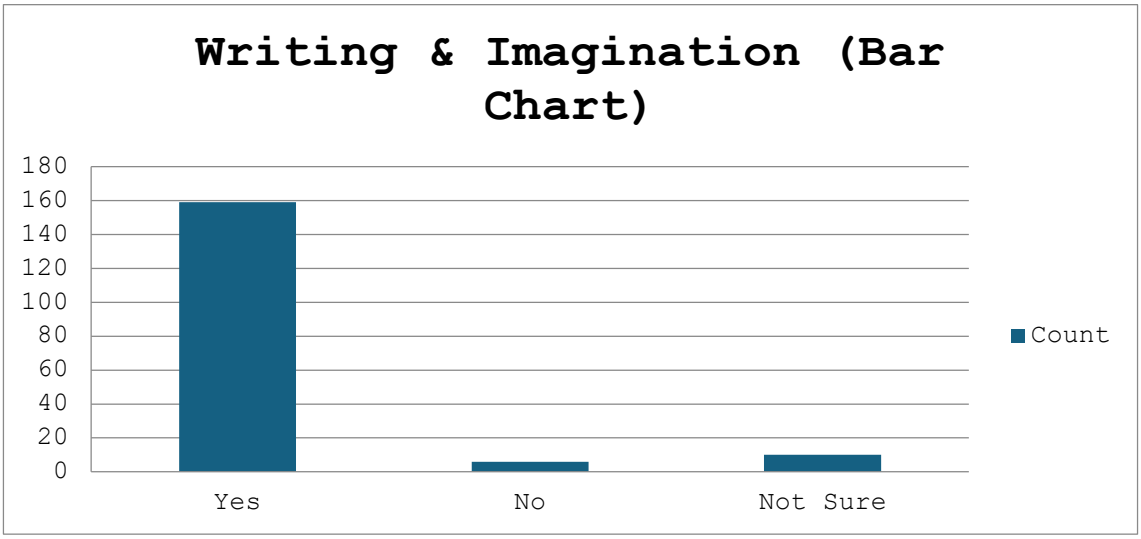


Figure 1.7 (Table 7)

Again Fig.1.7 (Table 7) shows that respondents strongly associate writing with creativity, imagination and self-expression. Out of 175 respondents 159 respondents i.e. 90.9% have admitted that writing improves imagination, 6 respondents i.e. 3.4% have denied it and 5.1% i.e. 10 were not sure. Thus it is clearly settled from the response that writing is widely preferred as a creative process that stimulates imagination.

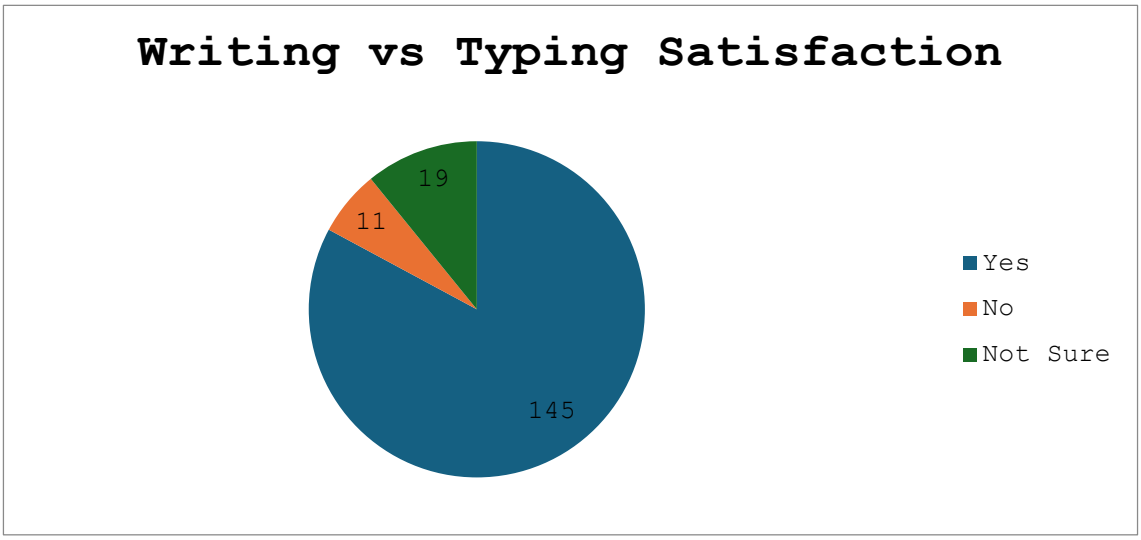
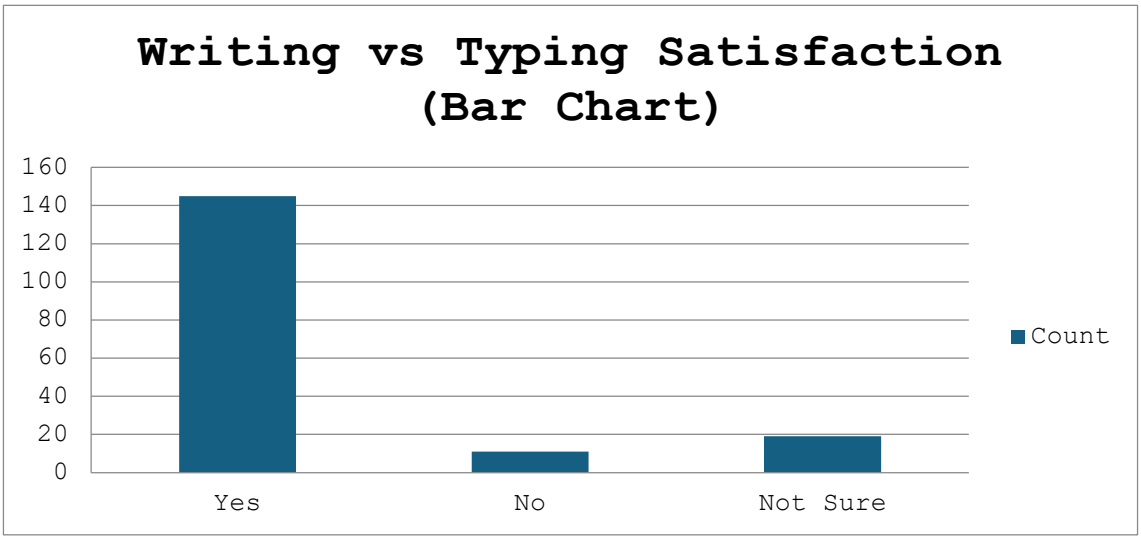


Figure 1.8 (Table 8)



The final Fig.1.8 (Table 8) clearly establishes the fact that writing gives better satisfaction than typing. As 145 respondents i.e. 82.9% out `of 175 respondents have admitted the same. Thus it was clear from the above observation that most respondents find handwritten expressions are more satisfying than typing, indicating an emotional and cognitive common connective with traditional writing.

On the basis of above analysis and the feedback of respondent certain measures were suggested for enhancing the writing tendency in the students. Whereby from the responses it was conclude that out of 175 respondents 73 respondents i.e. 41.7% have emphasis on the fact that education should be more writing centric. While 56 respondents i.e. 32% have suggested that use of digital technology is time-bound. 34 respondents i.e. 19.4% are convinced that AI should not be the only means of education. While 12 i.e. 6.9% have given various suggestions for bringing handwriting skills in mainstream. It is confirmed that the above data thus primarily advocate increasing writing-based activities in education while regulating screen time and limiting over reliance on AI.

On analyses of quantitative data it was concluded that wring by hand is any day better than typing by digital tools as it enhances the analytical skills of individuals, increase memory retention and as much more satisfying.Based on the findings of quantitative data analysis a qualitative method was adopted to ascertain the qualitative data and also to find out the real situation and probable solutions of enhancing and preserving the skills of writing of an individual, particularly students as it will ensure a better future.

That qualitative method was personal interview based, where 20 academicians, students and parents underwent a detailed personal interview. On the animatic analysis of Open Ended Responses the qualitative responses reveals five dominant themes, which are as follows:-

(i) **Balance integration of digital technology and traditional handwriting skills** - On the basis of responses the most frequently expressed view what that digital literacy and handwriting should co-exit rather than compete with each other. Respondents advocated a blended approach should be practiced that combines technological competence with regular writing practice.

(ii) **Continued Emphasis on handwriting -** Many respondents emphasized handwritten assignments, note-making, essay writing and written examination as essential tools for improving memory retention, concentration and critical thinking. Respondents have accepted that maintaining written assignments alongside digital clearing.

(iii) **Controlled and purposeful use of technology –** Many respondents accepted that though the use of technology cannot be overlooked in the digital age but the same should be controlled and purposeful. Several participants suggested limiting screen time and ensuring that technology serves as a learning and rather than a replacement for independent thought and creativity.

(iv) **Concern regarding AI Dependence –** Many respondents have raised a recurring concern over the excessive reliance on AI and auto-corrected features, which respondents believe may reduce originality, brainstorming ability and analytical thinking. People suggested that technology should be used as supportive tool.

(v) **Development of Holistic Learners** – Many participants emphasized that students should be proficient in both traditional writing and digital communication to meet contemporary educational and professional demands. Respondents emphasized that both digital literacy and manual writing should be equally encouraged.

Going by the qualitative approach it is concluded that respondents largely support a balanced educational model where digital tools complement, rather than replace, traditional writing.

6. Discussion and Conclusion –

Key Findings: The key findings of the study reveal that the respondents involved in the study value traditional writing despite widespread digitization. Most participants believed handwriting skills are decline among students. 84.6% of the respondents believed that digital dependence reduces cognitive engagement in writing. 77.7% raised significant concern regarding excessive reliance on auto-correct and digital devices. The study shows that writing as perceived as essential for imagination, analytical thinking and meaningful expressions. Almost 9.1% believe writing enhances analytical abilities. Also 90.9% believe writing stimulates imagination and creativity. 82.9% find handwritten expressions are more satisfying than typing. Participant involved in the study advocate for a balanced educational model that combines digital literacy with regular handwriting practice.

Discussion – The finding of this study align with the review literature, underscoring the decline of handwriting due to advent of digital technology. The strategies used by the educational institutions though traditional in approach but in the age of digitalization, schools have also not remained untouched with the advent of technology. Globalization has further increased the process of digitalization. Students are shifting more and more towards the use of digital tools to an extent that they do not want write anymore. Kids find it easy tools like auto-correct and chatGPT for doing their assignments and project work. This trend is ill affecting the traditional way of writing, which is in fact detrimental to the development of students as writing is something that increases the analytical skill and memory retention. Writing is something which gives a sense of satisfaction and pleasure to an individual. In order to save this skill of handwriting a mixed balanced approach should be adopted. Whereas both digital literacy with regular handwriting practice should be balanced.

Conclusion – The study finding clearly indicates that while digital communication has become dominant in modern society, traditional writing continues to hold substantial emotional cognitive and educational value. The finding indicates a strong perception that traditional writing continues to play a vital role in cognitive development, creativity, analytical thinking and personal expression, even in an increasing digital world. While respondent acknowledges the importance of digital literacy and technological competence, they overwhelmingly acknowledge the importance of preserving handwriting and writing-centered educational practices. The preferred approach is not the rejection of technology but the adoption of a balanced model in which digital tools complement rather than replace traditional writing skills.

The study strongly demonstrates that respondents view handwriting as an essential component of holistic education and intellectual development in the digital age.

Limitation – This study perceives some limitation that should be taken into consideration. First, the sample is based on 175 responses, which may not adequately represent broader population of students, teachers, professionals and other stake holders. Second, the survey was distributed on an online platform, which may have attracted respondents who are digitally active. This could influence perceptions regarding technology and writing. Third, the survey is cross-sectional in nature that means the study captures opinions at a single point in time and does not track changes in attitudes or writing habits over an extended period. Fourth and last, the study focuses on attitude towards writing and typing but does not assess actual writing performance, handing writing quality, creativity scores, academic achievement or cognitive outcome.

Future Research Scope –

The finding opens several avenues for future work. For instance future research may compare perception and habits of writing among school students, university students, teachers, professionals and senior citizens that means a comparative study across age group can be conducted. Further, research can conduct controlled experiments to compare handwriting – note – taking, digital note-taking and AI – assisted writing and also measure their effect on memory retention, comprehension, critical thinking and academic performance. Future studies can design and evaluate hybrid educational models that effectively integrate handwritten assignments, digital learning, AI assisted learning and creative writing exercise. At last further research can help to formulate educational policies regarding use of handwritten instruction and digital technology in educational institutions.

Acknowledgement – The author would like to extend her sincere thanks to all the respondents who actively participated in both the quantitative / qualitative, model of data collection.
Ethical Statement – the study was conducted in accordance with the establish principles of research. Informed consent was obtained from all the participants and confidentiality was strictly maintained.
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