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Teaching Calligraphy in a Modern Way

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Trabalho de Projeto

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DECLARAÇÃO DE AUTORIA

Eu Onur Alka, declaro que a presente dissertação / trabalho de projeto de mestrado intitulada "teaching calligraphy in a modern way", é o resultado da minha investigação pessoal e independente. O conteúdo é original e todas as fontes consultadas estão devidamente mencionadas na bibliografia ou outras listagens de fontes documentais, tal como todas as citações diretas ou indiretas têm devida indicação ao longo do trabalho segundo as normas académicas.

O Candidato

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[assinatura]

Lisboa, 21.10.2018

Resumo

A Caligrafia pode ser definida como a arte da escrita ou como o desenho de belas letras com instrumentos de escrita. Além de se executar lindamente as letras, deve-se também organizá-las adequadamente e, eventualmente, contribuir para uma página esteticamente bem conseguida. Quando a imprensa foi inventada, os caracteres tipográficos nasceram da caligrafia.

O design gráfico é baseado em três categorias importantes: imagem, ilustração e tipografia. Uma das características mais importantes de um designer gráfico é encontrar e usar caracteres bonitos e organizá-los bem. Acreditamos que um conhecimento completo do desenvolvimento histórico, anatomia e métodos de escrita, são elementos muito importantes para o desenvolvimento de um bom designer.

O uso de computadores e o desenvolvimento da tecnologia em geral resultaram em falta de interesse pela escrita «á mão». Além disso, o uso excessivo de fontes prontas faz com que as pessoas esqueçam as fontes realizadas manualmente. Para recapturar este conhecimento que foi lentamente esquecido, é necessário aprender caligrafia especialmente para quem pratica ativamente o design gráfico e usa instrumentos de escrita.

Este projeto teve como objetivo introduzir um guia prático com um visual moderno que permita aos iniciantes e especialmente aos estudantes de design gráfico e designers de tipo compreenderem facilmente os fundamentos da caligrafia clássica. Em vez de uma explicação complexa, frases abrangentes com palavras-chave e ilustrações claras são utilizadas em todo o projeto, para que todos, até mesmo os iniciantes, possam aprender confortavelmente os princípios da caligrafia. Além disso, o conteúdo caligráfico fundamental é apresentado através da prática e exercícios, juntamente com a base teórica necessária. Outro aspeto importante é a definição das regras baseadas em fontes fidedignas, o mais certas possível, uma vez que o iniciante precisa de normas dogmáticas em vez de expressões ambíguas.

A mão caligráfica abordada neste estudo é o modelo de Edward Johnston - "Foundational Hand". No final do século XIX, praticamente não havia nenhum designer de fontes que dominasse a caligrafia de ponta larga. Consequentemente, as fontes existentes estavam muito longe de serem estéticas. No entanto, no início do século 20, a caligrafia floresceu novamente através das obras de Edward Johnston, o homem que é considerado o pai da caligrafia de ponta larga. Johnston desenvolveu o modelo "Foun-

dational Hand", classificando as letras de acordo com sua semelhança geométrica e, portanto, revolucionou a maneira de aprender caligrafia. Johnston projetou novas fontes, que foram uma inspiração para outras fontes contemporâneas e obras que levaram a uma nova etapa na tipografia. Um dos exemplos mais importantes dessa transição é o tipo de letra Gill Sans, criado por Eric Gill, aluno de Edward Johnston. 'Foundational Hand' é uma *hand* redonda vertical como os minúsculos romanos, que tem sido usada há muito tempo como *Book-Hand*. Além disso, se um minúsculo romano é ensinado em primeiro lugar, o entendimento de outras mãos, como itálico, gótico e o copperplate, será muito mais fácil. Por estas razões, "Foundational Hand" é estudado de forma elaborada em nosso estudo.

Os materiais consistem numa parte muito importante dos livros de caligrafia. Como tal, a primeira parte deste estudo abrange em detalhes os materiais utilizados na caligrafia. Os principais materiais utilizados na caligrafia são caneta, tinta e papel. Além disso, uma mesa e um quadro para escrever são também necessários. Como a simplicidade é a chave para uma melhor compreensão, apenas as informações necessárias sobre todos esses elementos são fornecidas neste capítulo.

Depois de explicar os materiais usados na caligrafia, o próximo capítulo trata das letras e sua estrutura básica, conhecidas como proporções do esqueleto. Compreender a proporção do esqueleto para um designer de tipo ou para um calígrafo é tão importante quanto a compreensão do esqueleto humano para um médico. Através das proporções esqueléticas, a forma, proporção e relação das letras podem ser facilmente vistas e comparadas. Uma compreensão profunda dessa base permite ao calígrafo entender e projetar sistemas e alfabetos de letras mais complexos.

A classificação das letras, que é um estudo importante, é abordada numa seção separada. Uma boa classificação ajuda o aluno a distinguir as diferentes formas e compará-las. Aprender e praticar as letras em grupo é obviamente mais fácil do que aprendê-las letra por letra. Não há uma classificação comumente aceite do alfabeto fundamental da *hand*, portanto, este estudo objetivou fazer uma classificação clara das letras também. As letras minúsculas são agrupadas de acordo com sua relação com a letra-chave **O** e também com a largura da letra. Por outro lado, as letras maiúsculas foram classificadas em quatro grupos, de acordo com a largura das letras.

Antes de explicar a escrita com ponta de borda larga, algumas questões devem ser levadas em consideração, como começar a escrever com uma ponta mais larga, fazer

o ajuste necessário da ponta de metal e lidar com o problema da proporção do fluxo de tinta, foram apresentados.

Após uma breve demonstração da proporção de letras do esqueleto, o ensino da escrita com caneta de ponta larga - que é o objetivo principal deste trabalho - foi o próximo foco. Neste trabalho foram utilizados alguns métodos que ajudam no ensino de caligrafia com uma caneta de borda larga. Um método é mostrar as letras numa grelha com divisões. A grelha básica é dividida em quatro divisões para as letras minúsculas, seis divisões para as letras maiúsculas e todas as letras foram mostradas nela. Cada divisão corresponde a uma largura de ponta, que está relacionada à altura das letras. O outro método é o "método colorido de dois lápis", que é usado no projeto para mostrar o ducto. O ducto é o conjunto de sequências e direções dos traços das letras, e é um detalhe importante, especialmente para os iniciantes. Neste trabalho, o ducto foi explicado através de uma nova abordagem chamada "método colorido de dois lápis".

Mesmo o espaçamento entre as letras é muito essencial para a caligrafia e, às vezes, talvez mais importante do que letras separadas desenhadas de modo bonito. Por isso, uma seção separada é dedicada a esse tópico. Não há regra específica para espaçamento uniforme. Algumas letras têm formas de letra únicas, como resultado podem ocorrer problemas de espaçamento, como nas letras com final aberto ou início, conhecidas como letras abertas. Este estudo também abordou esses problemas de espaçamento.

Por fim, o último capítulo aborda outros tópicos importantes de design e espaçamento, como espaçamento de páginas (margens) e espaçamento de linhas. Com a ajuda deste capítulo, o aluno que já tem um bom entendimento sobre a caligrafia pode realizar um trabalho completo ou um projeto caligráfico.

O projeto desta tese é testado e validado por vários mestres da caligrafia, e utilizadores ativos, bem como estudantes de arquitetura e design, através de um workshop.

Através deste projeto foi obtido um melhor sistema de aprendizagem de caligrafia. Este sistema é projetado especificamente para estudantes de design gráfico e designers de tipo.

Palavras-Chave:

Caligrafia Latina, Alfabeto Foundational Hand, Layout de Página, Design Minimalista, Diretrizes Práticas

Abstract

Calligraphy can be defined as the art of handwriting or as the design of beautiful letters with writing instruments. Apart from beautifully executing the letters, one must also make sure to arrange them properly and eventually contribute to a well-implemented aesthetic page. When the printing press was invented, typographic characters were born from calligraphy.

Graphic design is based on three important categories: image, illustration and typography. One of the most important characteristics of a graphic designer is to find and to use beautiful type characters and arrange them well. We believe that a full knowledge of their historical evolution, anatomy and methods of writing, is a very important element for the development of a good designer.

The use of computers and the development of technology in general has resulted in a lack of interest in handwriting. Moreover, the excessive use of ready fonts caused people to forget manually designed fonts. To recapture this knowledge that has been slowly forgotten, it is necessary to learn calligraphy especially if one actively practices graphic design and uses writing instruments.

This project (Appendix D) aims to introduce a practical guide with a modern look enabling beginners and especially graphic design students and type designers to fully and easily understand the foundations of classic calligraphy. Rather than complex explanations, eye-catching sentences with keywords and clear illustrations are provided throughout the project, so that everyone, even beginners can comfortably learn the principles of calligraphy. Moreover, the fundamental calligraphic content is presented through practice and exercises along with the required theoretical background. Another important aspect is that great effort has been given to defining rules based on reliable sources since the beginner needs dogmatic norms rather than ambiguous expressions.

The calligraphic hand covered in this study is Edward Johnston's model – 'Foundational Hand'. At the end of the 19th century there were scarcely any font designers who mastered broad-edge calligraphy. Consequently, existing fonts were quite far from being aesthetic. However, in the early 20th century, calligraphy flourished again through the works of Edward Johnston — the man who is regarded as the father of broad edge calligraphy. Johnston developed the 'Foundational Hand' model by classifying the letters according to their geometric similarity and therefore revolutionized the

way of learning calligraphy. Johnston designed new fonts, which were an inspiration for other contemporary fonts and works that led to a new stage in typography. One of the most important examples of this transition is Gill Sans typeface, designed by Eric Gill, a student of Edward Johnston. 'Foundational Hand' is an upright round-hand like roman miniscule, which has been used for a long time as book-hand. Moreover, if a roman miniscule is taught firstly, the understanding of other hands such as italic, gothic and copperplate will be much easier. For these reasons, 'Foundational Hand' is covered elaborately in our study.

Materials are a very important part of calligraphy books. As such, the first part of this study covers in detail materials used in calligraphy. The main materials used in calligraphy are pen, ink and paper. In addition, a desk and a board to write on are necessary as well. As simplicity is a key to a better understanding, only the necessary information about all of these elements is provided in this chapter.

After explaining the materials used in calligraphy, the next chapter deals with letters and their basic structure, known as skeletal proportions. A type designer or a calligrapher understanding the skeletal proportion is as important as a doctor understanding the human skeleton. Through the skeletal proportions, the shape, proportion and relationship of the letters can be easily seen and compared. A profound understanding of this basis, allows the calligrapher to understand and design more complex letter systems and alphabets.

Classification of letters, which is an important study, is covered in a separate section. A good classification helps the student to distinguish the different forms and compare them. Learning and practising the letter forms group-wise is obviously easier than learning them letter by letter. There is no common accepted classification of foundational hand alphabet, hence this study aims at making a clear classification of the letters as well. The miniscule letters are grouped according to their relationship with the key letter **o** and also to their letter-widths. On the other hand, the capital letters are classified into four groups, according to their letter-widths.

Before explaining writing with broad edge nib, some issues, that have to be taken into account were presented such as: starting to write with a wider nib, making the necessary adjustment to the metal-nib-pen, and handling the problem of *rate of ink-flow*.

After a short demonstration of the skeletal proportion of letters, teaching writing with broad edge pen – the main objective of this work – was the next focus. In this work, some methods which help teaching calligraphy with a broad edge pen, were im-

plemented. One method is showing the letters on a grid with divisions. The basic grid is divided into four divisions for the lowercase letters, six divisions for the capital letters, and all the letters were shown on it. Each division corresponds to one nib-width, which is related to the height of the letters. The other method is 'coloured two-pencil method', which is used in the project to show the ductus. The ductus is the set of sequences and directions of the strokes of the letters, and it is an important detail, especially for the beginners. In this work, the ductus has been explained through a new approach called 'coloured two-pencil method'.

Even spacing between letters is very essential for calligraphy, and sometimes perhaps more important than beautifully drawn separate letters. Hence, a separate section is dedicated to this topic. There is no specific rule for even spacing. Some letters have unique letter shapes. As a result, spacing problems may occur, such as in the letters with open ending or beginning, known as open letters. This study addresses these spacing problems as well.

Finally, the last chapter covers the other important design and spacing topics such as page spacing (margins), and line spacing. With the help of this chapter the student who has already a good understanding about calligraphy can fulfil a complete work or a calligraphic project.

The project of this thesis is tested and validated by various masters of calligraphy, and active users, such as students of architecture and design, through a workshop.

Through this project a better system for learning calligraphy was obtained. This system is specifically designed for graphic design students and type designers.

Acknowledgement

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Introduction

The word 'calligraphy' comes from Latin and translates to 'beautiful writing'. In Europe it relates to the Latin calligraphy, in China to the Chinese calligraphy and in Arabia to the Arabic calligraphy. The word 'calligraphy' in this study refers to the Latin calligraphy.

Calligraphy, which is considered to be one of the oldest art forms in the world, started with the invention of writing. It went on as an occupation for thousands of years until the establishment of print shops, changed into the art of typography, consequently the broad edge calligraphy eventually disappeared as a common practice until is recovered by Edward Johnston.

Back then when people talked about calligraphy they thought of copperplate. Calligraphy was not used to write books, but to write pretty looking letters and merely with a lot of decoration. Books, magazines and posters which need more legible letters were designed with pre-made fonts. There was a loss of quality and legibility. The quality of fonts degraded over the centuries. Before entering the 20th century there were no font designers left that mastered broad edge calligraphy. Existing fonts were quite far away from being aesthetic.

However, in the early 20th century calligraphy flourished again through the works of Edward Johnston, the man who is regarded as the father of the rebirth of broad edge calligraphy. Johnston did a research into abandoned ancient manuscripts that he found in libraries and downright contributed to the resurrection of the long gone broad edge calligraphy. Johnston developed the 'Foundational Hand' model by classifying the letters according to their geometric similarity and therefore revolutionized the way of learning calligraphy. Johnston designed new fonts which were an inspiration for other contemporary fonts and works that led to a new stage in typography. One of the most important examples of this transition is Gill Sans, designed by Eric Gill, a student of Edward Johnston.

Unfortunately, when people talk about calligraphy today, the common image is still that of decorative and exaggerated writings. In addition to that, there are mainstream amateurs on the internet and especially on social media platforms that call themselves 'masters' of calligraphy who impose the idea of decorative calligraphy to the ones showing interest towards calligraphy. On the other hand, there are good resources

and materials for learning serious calligraphy, but they are relatively outdated and not designed for designers In this project we aim at facilitating calligraphy learning in a clear and easy way through modern design techniques, especially for the graphic design students.

Furthermore, with the distribution of personal computers graphic design was simply made on them. There was a trend of the digital and calligraphy was forgotten. After the overuse of digital typefaces, graphic designers began searching for new ways. On the account of this search, calligraphy had once more gained importance for font designers today.

It can be concluded from the abovementioned reasons that, although there are lots of books about teaching calligraphy, there is still a particular need for a practical guide that explains it in a better way especially for the graphic design students and type designers. This work aimed to:

- go through the topics with the help of key words, short sentences and easy drawings and illustrations rather than long and hard to apprehend explanations, so that everyone can easily follow and master the foundations of classical calligraphy without the need for high language skills;

- focus more on practice and exercises and have space just for the required amount of theory so that the topics could be mastered easily;

- produce the basics of calligraphy in an easy and exciting way through modern and minimalist design.

- present the calligraphic content that is important for graphic designers and typographers.

The dissertation is organized in the following way: the first section, includes a practical guide through the explanation of the materials used in calligraphy. It is then followed by the letters and their basic structures also known as skeletal proportions.
The section the skeletal proportion of letters deals with teaching the writing with broad edge pen.

Finally, the last chapter covers the other important design and spacing topics such as page spacing (margins), and line spacing.

1.1.   Research questions

How to create a practical guide that allows students to learn calligraphy in a modern and effective way?

What calligraphic content interest graphic and type designers?

Does Foundational hand interest graphic designers?

1.1.   Methodology

A mixed methodology of non-interventionist and interventionist is used in the project. It is started with a literary research and the collected information is applied through the Project. After that the pre-results are validated through masters and through active learners such as graphic design and architecture students.

1.2. Aims

General aims

The main purpose of this project is to introduce a practical guideline which enable even beginners to fully understand the basics of the classical calligraphy. The following general goals is tried to be achieved, while this manual is being prepared:

- Developing content of interest for graphic and type designers

- Designing exercises and practices that enable a quick understanding of finished topics

- Converting the methods in the form of key words and simple illustrations to express modern design techniques, so that even people with basic language skills can easily understand them

- Researching the foundations of classical calligraphy from reliable sources, and the identification of secure information and education methods

- Selecting the most adequate methods and if necessary, modernizing and developing them, classifying them into topics and sorting them into a unity

Specific aims

- Covering the training method 'Foundational Hand' by Edward Johnston, as a basic model and produce it in an effective way.

- Prove that rather than starting chronologically with Roman Capitals, first start with Roman minuscules and later turn back to upper-case letters, is more efficient.

- Practicing the alphabet, first and foremost, with the help of a one-dimensional skeletal forms and then later on by analysing and using letter forms written with a broad-edge pen for an easier understanding.

- A detailed practice of the spacing between letters, words and lines which is as important as a good drawing of the letters

- After understanding manually structure the letters covering page layout and design

1.3. Design of the investigation

THEME
Calligraphy

TITLE
Teaching calligraphy in a modern way

RESEARCH QUESTION
How to create a practical guideline that allows students to
learn calligraphy in a modern and effective way?

SUB-RESEARCH QUESTIONS
Does Foundational hand interest graphic designers?
What calligraphic content interest graphic and type designers?

STATE OF THE ART

HYPOTHESIS
A Calligraphy method presented through easy illustrations, key
words and short sentences, will be effective for learning

METHODOLOGY
Non-Interventionist
Literary research

Interventionist
Project and experiments

EVALUATION

Through masters   **Through students**

PRE-RESULTS

CONCLUSION

CONTRIBUITIONS

2. Theoretical Framework

State of the art

"Calligraphy is a geometry of the soul which manifests itself physically."

Plato

The definition of calligraphy

Calligraphy has multiple definitions. The term calligraphy comes from the Greek, kallos (=beauty) + graphein (=to write). It can be simply translated as beautiful writing "but the beauty could be expressed as artistic beauty at a very high level". (Mediavilla, 1996)[1].

Calligraphy can also be defined more meaningful:

"Calligraphy is the art of giving form to signs in an expressive, harmonious and skilful manner" (Mediavilla, 1996)[1]. or,

"geometry can produce legible letters, but art alone makes them beautiful. Art begins where geometry ends, and imparts to letters a character transcending mere measurement." (Standard, 1979)[2]

Brief history and calligraphic revival

Calligraphy is one of the oldest art forms in the world, which started with the invention of writing. By the seventeenth century, calligraphers discovered fine point nibs. "Round hand" and "Copperplate" styles became very popular in England. Eventually, with the rise of trading empires, it spread very quickly around the world. The broad edge calligraphy, however, with which the ancient scripts were written, was forgotten. (Harris, 1995)[3] Mediavilla expresses this impressively: *"It was generally believed that medieval gothic scripts had been executed by drawing outlines of the letters which were than filled in."* (Mediavilla, 1996)[1].

William Morris (1834-1896), a humanist artist, had a big interest in calligraphy. Edward Johnston was his student and with Morris setting it in motion, Johnston could study the finest ancient manuscripts in the British museum's collection and therefore rediscovered the hidden calligraphy treasure. He was given a teaching position at the Central School of Arts in London. *"Though there were few students for his first class, they were later become the apostles of the calligraphic revival."* (Mediavilla, 1996)[1].

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Eric Gill, who is the creator of the famous typeface Gill Sans, was one of his students in London. (Mediavilla, 1996)[1]

The relation with Graphic Design and Typography

Calligraphy is not merely designing beautiful letters, but one of the finest arts. Mediavilla says: *"Calligraphy is thus a fundamental discipline covering a wide range of artistic activities. By its very nature it lies at the heart of practically all forms of graphic expression and can be employed equally to teach writing in schools, to train graphic designer, or as a source of inspiration in abstract painting"* (Mediavilla, 1996)[1].

Nearly all modern lettering is drawn with a pen or a pencil. As Michael Harvey says: *"Today the pencil is the universal lettering tool"* (Harvey, 1975)[4] But Tom Perkins righteously adds: *"Unfortunately, the pencil on its own provides us with no information as to how a letter is formed"* (Child, 1985)[5]. Edward Johnston, the pioneer of the modern calligraphy, supports Harvey with his words: *"The broad nib was the principle formative tool in the development of writing. From early stylus made skeleton letters, it produced the conventional finished shapes and varieties we now use (familiar to most of us mainly in print. The finished shape and structure of the common alphabet is, in fact, bound up with the shape and action of our pen"* (Johnston, 1971)[6]. He added in his book 'Writing, Illuminating and Lettering', which is often referred to as the calligrapher's Bible: *"Nearly every type of letter, which we are familiar is derived from Roman Capitals"* (Johnston, 1917)[7]. Additionally, Perkins establishes a bond with modern lettering and calligraphy: *"The Roman Capitals form an excellent basis to demonstrate certain visual principles. These principles combined with freehand drawing techniques can be applied to many sort of letterforms"* (Child, 1985)[5].

Since typography is the offspring of calligraphy and took over all of its principles, one may suggest that a type designer, who does not have a full knowledge of the historical development of writing, the anatomy of letters and the basic principles of calligraphy, can never be a good typographer and a graphic designer.

Which alphabet should be studied first?

A graphic designer should without a doubt learn calligraphy, there is no question about that but the way of how he or she approaches it and the learning process should definitely be discussed. As already mentioned above, Sir Edward Maunde Thompson, a British

palaeographer, wrote like Edward Johnston: *"The Alphabet which we use at the present day is directly derived from the Roman alphabet, the Roman, from a local form of the Greek; the Greek, from the Phoenician."* (Thompson, 1912)[8].

As the chronological sequence the Roman Alphabet should be taught first. Johnston wrote: *"The best training is found in the practice of an upright round-hand. Having mastered such a writing, the penman can acquire any other hands—sloping or angular—with comparative ease."* (Johnston, 1917)[7]. Sheila Water follows Johnston: *"Many professional calligraphers and teachers believe that this* (teaching italic first) *isn't the best approach, for it's clearly more difficult for beginners to build a consistent alphabet upon an oval base than upon a circle... Every minuscule alphabet, including italic is more understandable if a Roman minuscule, based on a full circle, is taught first."* (Waters,2014)[9]. Partially on the contrary, Mediavilla defends that Johnston's manual might be out of date after more than hundred years and that Edward Johnston was a medical student and never went to an art school. Moreover, he adds: *"The letterforms which Johnston used are thus often far removed from the originals to be found in palaeographic sources. One might even legitimately question Johnston's interpretation of palaeography, for it was constructed to suit his own ends."* (Mediavilla, 1996)[1]. He criticized British calligraphers for not daring to ask the question, if Johnston's manual was still relevant today. (Mediavilla, 1996)[1].

On the other hand, Ann Camp, a professional scribe and member of the Society of Scribes and Illuminators, who follows Johnston's path, says: *"The student must be aware of the practical problems of the craft before he can benefit fully from the study of ancient hands. Tradition cannot be ignored but current needs are equally important and contemporary pen lettering should never look archaic."* (Camp, 1978)[10]. She goes on and also adds: *"The possibilities of self-expression in the art of calligraphy are unlimited but the beginner will be helped by certain rules. These rules have to be dogmatic, and the first stages in learning to write a formal hand must necessarily be slow and imitative."* (Camp, 1978)[10]. This means that beginners should have certain rules which are based on the studies of ancient sources during the formation. After mastering the subject, however, everyone is free to express himself individually. As Camp says: *"With knowledge he may ignore all rules to achieve his object."* (Camp, 1978)[10]. In following section, based on our investigation, we set up to explain steps to be followed by the instructors throughout the teaching process of calligraphy. But, first, we start with the materials.

3. Theoretical background of the project (Appendix D)

3.1. The Materials

Almost every book about calligraphy bears a chapter on materials. The basic materials used in calligraphy are pen, ink and paper. In addition, a desk and a board to write on are necessary as well. To keep it simple, we just gave the most necessary information about all of these four elements.

The Desk

Most of the calligraphers suggest writing on a sloped desk when a dip pen is used. First-ly, that helps to control the rate of ink flow against the pull of gravity. If a flat table is used, the ink will flow very fast and the writing will become more difficult. Secondly, writing on a slope is more comfortable. Plus, it is good for the neck and shoulders and the work can be seen directly. (Johnston, 1917; Camp, 1978; Brown, 2012; Waters, 2014)

The Board

Given that writing on a hard surface with a hard metal nib is very difficult, coupled with the fact that hard surface does not respond well, it is important to have a soft one under the paper. According to Ann Camp, this soft surface can be a flattened newspaper (Camp, 1978); alternatively, Sheila Waters suggests that a few smooth papers are suffi-cient (Waters, 2014); Whereas Denis Brown supports this idea but disagrees on the quantity of paper and says that *"Just a few sheets of thin paper is not enough; the cush-ioning of a good pad is much better."* (Brown, 2012). Having tested out these options, we came to the conclusion that: several smooth papers make writing easier.

Another important aspect of the board is its size. The size of the board needs to be greater than the size of the writing paper. According to Susan Hufton the board size must be at least A2 format. (Hufton, 1995)

The writing surface should be clean to achieve better calligraphic results. The oil of the skin and the sweat of your hands can interfere with your paper. In order to pre-

vent this, using a guard sheet is suggested. This guard sheet will also protect the paper from drops of ink while loading the pen. (Brown, 2012; Camp, 1978; Goffe, 1996)

The Pen

Many pens are available for calligraphy, such as: quills, fountain pens, metal dip pens, automatic pens, cola pens, brush pens, just to mention some. Quill pens are mostly made from the feather of geese, and they were commonly used for fine writing. Nevertheless, with the invention of metal nibs, their use decreased dramatically, partly because the preparation process is very hard and time consuming. On the other hand, felt tip markers and fountain pens – Pilot parallel pen, which is a modern calligraphic fountain pen, can be mentioned as well – are much easier to use for the beginners and for practice or rough sketches. But they are not suitable enough for fine writing. (Hufton, 1995; Mediavilla, 1996; Child, 1985; Brown, 2012). Therefore, for fine writing, like most of calligraphers, we recommend the use of the metal nib pens.

There are several brands of metal nib pens, like Brause, Speedball, Leonardt Tape and Mitchell. For the purpose of this work, we tested the above-mentioned metal nib brands. Leonardt tape and Mitchell nibs proved to be relatively much softer, as a result, require finer handling with pen, which is not very recommendable for beginners. While speedball nibs are popular in USA, they are relatively scarce in Europe. For these reasons, we believe Brause nibs to be more suitable for the beginner because they are stiff, durable and abundant. In fact, Denis Brown also points out the stiffness and durability of the Brause nibs especially for big sized writing.

Like some other nibs, Brause nibs also include a reservoir – which serves to hold a small amount of ink, that can be dipped or filled with a simple brush, to help writing faster and prevent loading the pen too often. (Child, 1985)

Choosing the pen holder is also important. A good pen holder should have a long round barrel. The long barrel helps to achieve good balance; the roundness serves to roll the holder in the fingers easily. (Child, 1985; Camp, 1978; Brown, 2012)

Ink

Ink plays a big role in calligraphy, as such, for a calligraphic work, a good one needs to be chosen carefully. There are excellent alternative inks like carbon based or iron based inks, gouaches, watercolours, acrylic inks etc. The most important feature of good ink is

it's capacity to flow freely without bleeding. For instance, thick and gummy inks cannot flow freely and can clog the nib. Edward Johnston, the pioneer of the modern calligraphy, said *"A good, prepared liquid carbon ink is best. Waterproof inks as a rule are too thick or gummy, and do not flow freely".* (Johnston, 1917)

Good alternatives to inks are gouaches and watercolours. These are based on water, for this reason, they are thin and non-waterproof. Some calligraphers like Brown and David Harris also add watercolours and gouaches as a good alternative. (Harris, 2003; Brown, 2012) Most calligraphers share the same opinion about not using waterproof inks, because they do not flow freely and clog the nib easily (Johnston, 1917; Child, 1985, Waters, 2014; Camp, 1978; Harris, 2003).

Another good alternative is walnut-inks, which are manufactured from walnut crystals. They produce rich brown colour and suitable for calligraphic work (the hand written examples in the project are written with walnut-ink)

Regarding our experiences and the agreed suggestions of most calligraphers, a good ink should be a non-waterproof carbon-based ink, which is thin and able to create hairlines, or alternatively a good gouache or watercolour can be used.

Paper

Paper is another essential element in calligraphy. Beside paper, other materials such as fells, woods or even stones can be used as writing surfaces. Since this work is about teaching calligraphy to the beginners, we will focus only on paper. For exercising purposes and for the beginners, smooth and quality copy papers are sufficient. For advanced and careful works, quality handmade papers are the best (Johnston, 1971; Camp, 1978; Harris, 2003; Brown, 2012; Mediavilla, 1996).

As Denis Brown mentioned in his online course, and based on our personal experience too, a little tooth or texture on the paper helps to write, or as put by Brown says: *"Writing on a very smooth paper is like walking on ice"* (Brown, 2012).

Another important specification for a good paper used in calligraphy is not letting the ink bleed. Unseized or badly seized papers can cause the ink bleed. And of course, a good paper should allow producing sharp and clean lines (Goffe, 1996; Hufton, 1995).

Having explained the necessary materials for calligraphy, in the following section, we start explaining the process of teaching foundational hand. First, let us start with skeletal proportions of lowercase.

3.2. Skeletal proportions of lowercase letters

Why did we start with skeletal proportions?

Understanding the skeletal proportion of the letters for a type designer or a calligrapher is like the importance of understanding the human skeleton for a doctor. The skeletal proportion is the basic structure of the letterforms. The shape, proportion and relationship of the letters can be easily seen and compared. A profound understanding of this basis, allows the calligrapher to understand and design more complex letter systems and alphabets. (Hufton, 1995; Camp, 1978)

We started with a basic square grid on which is inscribed a circle. *(Figure 1)* On this basic grid the relationship between letters and especially the key letter '**o**' can be compared more easily. (Waters, 2014; Hufton, 1995)
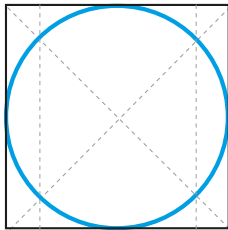
Figure 1

How did we group the letters?

There is no common accepted classification of the letters of foundational hand alphabet. As a matter of fact, Edward Johnston, the creator of this alphabet, did not classify the letters. However, there are some calligraphers who grouped the letters according to their widths, to the relationship with the key letter '**o**', to the direction of the arcs etc.

Waters classifies the letters in four groups:

Table 1. Groups of letters (Waters, 2014)

Table 1

Group 1	Letters which have only a small part of the **o** omitted from their bowls are	o b c d e p q b

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Group 2	Letters which retain two arcs of the **o** are	a *and* s
Group 3	Letters which retain one arc of the **o** are	n m h k l t r f j u
Group 4	Letters with no curves but which relate to the foregoing letters are	v w k x y i z

One of the classifications in this study, shown in Tab. 2, is based on the classification of Sheila Waters (Table 1). Some simplifications such as combining Group 2 and Group 3, and new group names have been introduced.

Table 2: Simplified Letter Classification
Table 2

Group Name	Description	Letters
Round Letters*	The letters which contain three parts of the circle **o**	o c q d e p g b
Rectangular-Round letters	The letters which contain one or two arcs of the circle and written in basic grid except **m**	r n h m k f l t j u s a
Diagonal Letters**	The letters with no curves	I k v w x y z

* Child, 1985, Hufton, 1995

** Hufton, 1995, Goffe, 1996

The other classification this study aimed at is based on the width of the letters. Table. 3
Table 3

Group 1	Average Letters ca. 75% of full width of **o**	n g r n k l h a s u
Group 2	Wide letters ca. 85% of the **o**	c d e q b p t f
Group 3	Full width letter 100%	o
Group 4	Very wide letters ca. 140%	m w

i and **j** which have obviously no width are not included as a group to avoid building too many groups.

Why did we use blue colour?

Since the letters were grouped according to their relationship the letter **o**, emphasizing the related part with a colour gives a better understanding.

Even Spacing

Even spacing between letters is essential for calligraphy, and sometimes perhaps more important than beautifully drawn individual letters. There is no specific rule for even spacing. According to Johnston *"It is sufficient for the beginner to take care that two curved letters are made very near each other, and that two straight strokes are spaced well apart"* (Johnston, 1917) *(Figure 2)* However, it is very difficult for the beginners to achieve perfectly spaced letters. Like Mediavilla says: *"The trained eye is the only sure judge of letter spacing"* (Mediavilla, 1996)
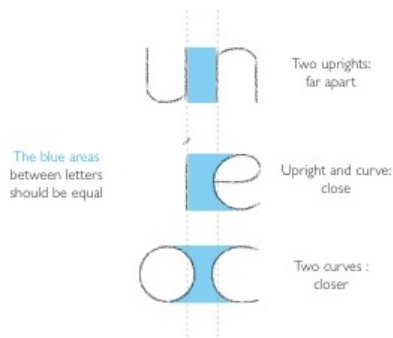
Figure 1

Since some letters have unique letter shapes, some spacing problems can occur, such as the letters with open ending or beginning, called *'open letters'*. Solutions for these spacing problems are necessary to find. Waters states that the spacing formula is easy. According to her, the negative spaces or rather white areas between letters should be the same.

3.3. Lowercase letters with broad edge pen

After a short demonstration of skeletal proportion of letters, from now on, we would like to focus on the teaching writing with broad edge pen – which is the main objective of this work.

The issues to be taken into account before starting the actual writing process

To begin with, as recommended by many calligraphers, the nib used by beginners and for exercise purposes needs to be wide, because writing with a broad nib is relatively easier, and the mistakes are clearly noticeable. Writing with a narrower nib can look prettier, but it is difficult to use for the beginner and it is difficult detect the mistakes. Consequently, we recommend starting with a 3-mm width nib or wider, and after

achieving some confident in writing, narrower ones can be gradually used (Johnston, 1917; Camp, 1978; Brown, 2012).

Furthermore, it is worth mentioning that the nib may need cleaning from the fabric lacquer, which serves to protect it against corrosion, and in case of non-satisfactory writing results, e.g. ink flow issues. There are some techniques used for cleaning the nib, such as holding it in boiled water or flame for a few seconds. (Child, 1985; Goffe, 1996)

The reservoir should be put approximately 3 mm away from the top edge of the nib. The improper placement of the reservoir will affect the rate of ink flow. If it is too close to the top edge of the nib, the ink will not flow freely. On the contrary, if it is far from it, the ink can overflow. (CH, 1985; Goffe, 1996; Waters, 2014)

As already mentioned, the rate of ink flow is very essential when writing with a dip pen. The following are the factors that can affect the ink flow:

Slope of desk: The steeper the board is, the slower the ink will flow.

Holding the pen: The steeper the pen is held, the quicker the ink will flow.

Cleanness of nib: A dirty nib can cause clogging.

Reservoir adjustment: If the reservoir is attached too tightly, the ink flow will decrease.

Paper surface: A very smooth paper surface can cause faster flow; a very rough surface can cause slower flow.

Density of ink: Ink that is too dense like waterproof inks can prevent free ink flow. In such cases it should be diluted with distilled water (Johnston, 1917; Waters, 2014; Child, 1985; Hufton, 1995).

Anatomy of letters (Figure 3) is one of aspects of writing the students need to know

X-height shows the height of letters with no extension – ascender or descender, and to measure the height of the letters nib width is used as measurement unit.

Calligraphers like Sheila Waters, Claude Mediavilla and Susan Hufton, take the x-height as four (4) nib width. However, other calligraphers like Ann Camp, Gayner Goffe, and Irene Wellington prefer a four and half (4.5) nib width. Actually, like Woodcock says "The width of nib may obviously be varied. For practice purposes four or four and a half nib" adding as well that this is not an inflexible rule. (Waters, 2014; Camp, 1978; Goffe, 1996; Child, 1985). For the purpose of this study, four (4) has been chosen as the width of the nib. This selection not only facilitates the drawing of the auxiliary

lines for beginners, but also it is an easy-to-remember integer as well. Following the same logic, six (6)-nib width and seven (7)-nib width have been selected for capital height and the height of ascender and descender respectively.
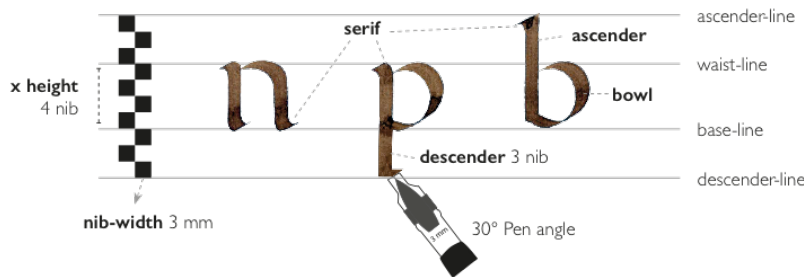
Figure 2

Pen Angle

Different pen angles lead to different constructions. Many authors agree on the 30-degree pen angle. This pen angle creates neat thin and thick strokes, and moreover it gives a good contrast between these strokes. If instead of this pen angle, a steeper one, such as 45°, were to be used, it would have created the same thickness for verticals and horizontals at the same time, which is undesirable. Nevertheless, there are exceptions for some letters, such as diagonal letters. (Hufton, 1995; Waters, 2014, Goffe, 1996)

The main goal is to avoid the use of multiple thicknesses, and to achieve a consistent alphabet with only two. For this reason, a 30-degree pen angle should not be used when drawing the first diagonal strokes of v, w, y, and x, since it creates thicker stroke, leading as such to a third undesirable thickness. In order to achieve a consistent thickness, it is necessary to use a steeper pen angle, such as 45°. (Waters, 2014; Goffe, 1996; Child, 1985)

Besides this, some specific letters need different pen angles in order to achieve the desired stroke thickness. The tail of the letter k is better drawn with a flatter pen angle such as 20°, whereas the diagonal of the letter y with a pen angle approximately 0°. (Waters, 2014; Goffe, 1996)

Ductus, Sequences and direction of strokes

Ductus is the set of sequences and directions of the strokes of the letters. This is an important detail to have in mind. There are different approaches to show the ductus. Below are some of them:

1. Showing the strokes one by one *(Figure 4)*. Edward Johnston and John Woodcock use this method (Johnston, 1917; Child, 1985).

Figure 3

2. Showing the strokes with an arrow, which follows the stroke from beginning to end *(Figure 5)*. Many calligraphers use this method. In addition to that, Sheila Waters adds white lines on the black coloured letter to emphasize the difference of the strokes (Waters, 2014).

Figure 4:

3. Two pencil method *(Figure 6)*: Two pencil are bounded together, so that the pencils create two-dimensional skeletal appearance. It is a clear and effective way of showing the stroke sequences. This method is used also by many calligraphers like Ann Camp and Irene Wellington.
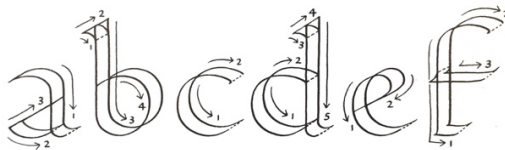
Figure 5:

4. Colour approach: Showing the strokes with different colours *(Figure 7)* makes them more visible and easier to recognize. This is also an effective method used by some calligraphers like David Harris.
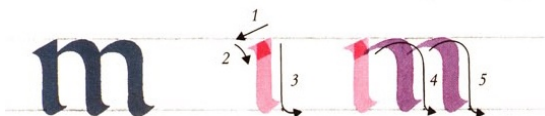
Figure 6:

Based on the above illustrations, we think that '*the two pencil method*' and "*coloured strokes method*" are much more effective (than the others) in showing the strokes and their sequences. As such, in our opinion, the best way of displaying the ductus is through a combination of these two methods – 'coloured two pencil method' *(Figure 8).*

Figure 7

Having said this, we will now illustrate how to draw capital letters.

3.4.   Capitals

Skeletal proportions

For the same reasons we started with skeletal proportion in lowercase section, here too, we will start with explaining capitals with skeletal proportions. Moreover, similar to the previous case, we use the same base for the Capital letters – square grid with a circle *(Figure 9)*
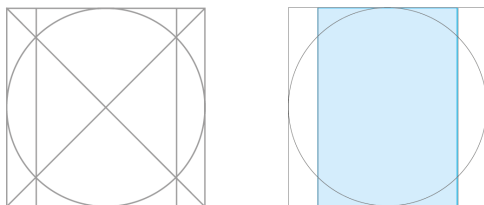
Figure 8

Grouping the capitals

Like in the lowercase letters, there is no commonly accepted classification of the capitals. The lack of unanimity notwithstanding, several calligraphers have proposed some classifications. Below are some of them: We made a study about classification and took a decision which one we will use in this work.

1. Edward Johnston's classification:

   Basically he classifies the letters into two groups: wide and narrow based on their width. *(Table 4)* The wide category, in turn, is further classified into two groups:

Table 4

Wide Circular Letters		Narrow Letters
Round: O Q C G D	**Square:** M W / H U A N V T Z	B E F R S Y X I J K L P

2. Sheila Waters followed her master, Edward Johnston, in her classification *(Table 5)*. She did not make any significant change in it, she only extended the classification – instead of two, it became five.

Table 5

Wide Letters			Narrow Letters	
Round	**Rectangular**	**Wide**	**Gr. 1**	**Gr.2**
O Q C G D	H U N T A V Z	M W	B E F L P R S	K X Y J

3. John Woodcock groups the letters in "Calligrapher's Handbook" differently *(Table 6)*.

Table 6

Round	**Rectangular**	**Half-Width Round or Rectangular**	**Triangular**	**Multiple**	**Intermediate**	**Thin**
O Q C G D	H U N T Z	B E F L P R S	A V X	M V	K Y	I J

4. Susan Hufton's grouping *(Table 7)*:

Table 7

Round	**Rectangular**	**Narrow**	**Diagonal**	**Small Bowl Letters**
O Q C G D	H U T Z	I J L E F K	A V X Y N M W	B P R S

5. Gayner Goffe's grouping *(Table 8)*:

Table 8

Wide Circular	**Extra Wide**	**Three Quarter width**	**Half Width**
O Q C G D	M V	H A V N T U X Y Z	B P R K S E F L

Actually, all the above classifications are inspired from Edward Johnston's. Based on the above mentioned classifications, we classified the capitals according to their widths, however, the widths of letters need be defined as clear as possible. Thus, our classification is:

1. *Round Letters*: **O Q C D G**: The letters which contain at least half bowl of the circle of the key letter **O**. The average width is ca. 5/6 of full width, except **O** an **Q**: (Same like the other classifications)

2. *Rectangular Letters*: All letters which fit on the rectangle on our basic grid. (Figure 6) The average width is ca. 4/6 of full width: **H U N T A V X Y Z**

3. *Narrow Letters*: The average width of this group, half of the full width. With exception of the tails of **K** and **R**, which have a slight extension of about half division, for balance reasons. **L E F K P R B S J**

4. *Wide Letters*: **M** (full width of **O**) and **W** (extends the basic square)

We divided the basic grid into six divisions and put all the letters above them. Each division corresponds to one nib-width, which is related with the six nib-width height of capitals. To achieve a consistent teaching model, we divided the basic grid into 6 divisions and used the same grid for the capitals written with broad edge nib (Figure 10).
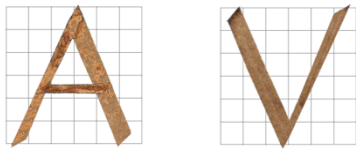
Figure 9

Some refinements for optical balance

The optical balance will be covered in the following chapters. For now, we will make some refinements to some letters for optical reasons. These refinements are emphasized with an arrow.

There are letters such as B E H K, which have two parts: bellow and above. Since our eyes see the upper part bigger than the lower part, we should make the upper parts smaller to compensate *(Figure 11)*. For instance, the upper part of B and K should be smaller than their lower part. The crossbars of E and H should be slightly raised. Furthermore, given that the lower part of A is bigger, to compensate, the crossbar should be lowered. For the same reason as in the A case, we should lower the geometrical centre of F and P. To compensate for the optical problem of the letter R, we shouldn't raise the upper part. But, we need to enlarge the tail. Lastly, we don't raise the centre of S. Instead, we make the upper bowl shorter than lower.

BB 88
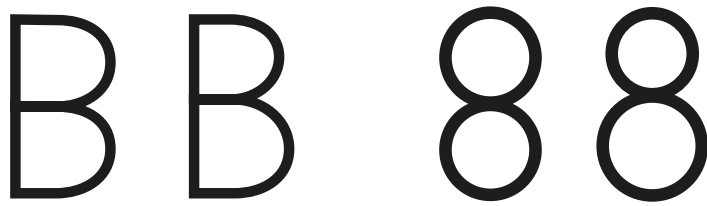
Figure 10

In addition to this, it must be noticed that the bowls of G, C and j do not follow the circle O, so they should be slightly flattened to prevent them to become too heavy and thick while writing it with dip pen. For the sake of consistency, we also used this flattened version for skeletal proportions (Johnston, 1917; Hufton, 1995; Waters, 2014; Goffe, 1996)

Pen Angles in Capitals

We follow the same principles as in the lowercase scenario. We should achieve a consistent alphabet with thick and thin strokes through pen angle changes. As a principle, we should create all the letters with two thicknesses: thin and thick stroke. For that matter, some refinements should be made. Similar to the lowercase letters, in the capital letters also, the dominant pen angle is 30°. However, as everything in life, this rule is not without some exceptions:

45° Pen Angle: The left diagonals of the letters: **A V X Y W M** should be written with stepper pen angle like 45°, because 30° pen angle would create a thicker stroke.

20° Pen Angle: for the same reason, the tails of **Q R** and arm and leg of **K** should be written with 20° Pen Angle.

60° Pen Angle: All strokes of **N** should be 60°. The first Stroke of **M** should be thin to create contrast with other thick strokes. For that to happen, a steeper pen angle such as 60° should be used.

0° Pen angle: Diagonal of **Z** should be written with 0° to create the same thick stroke, as the others (Waters, 2014; Hufton, 1995; Camp, 1978)

Throughout this work, we define the rules with minimum uncertainty possible, because it is much easier for the beginners to learn the precise rules. As Ann Camp suggests: *"The possibilities of self-expression in the art of calligraphy are unlimited but the beginner will be helped by certain rules"* (Camp, 1978). Nevertheless, with the exception of Sheila Waters, all the calligraphers, whose work was revised for the purpose of

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this work, specify the pen angle degree. Consequently, we used the definition suggested by her.

Why did we start with sans serif letters?

In comparison with lowercase letters, capitals have more complex shapes. Because of that, we think that it would be better if the students start to learn sans serif version. After gaining some confidence, the serifs can be easily added. (Waters, 2014)

Optical illusions

As we have already mentioned, our eyes see some objects slightly different than real one.

This phenomenon is called optical illusions. As they can be frequently observed in our daily lives, optical illusions are also recognizable in the letters, especially with the letters, which have two part superimposed like B, E and K. If both the lower and upper parts are the same, the eye sees the upper one as slightly bigger. In this case to avoid this problem, we make the upper part smaller (Mediavilla, 1996) *(Figure 11)*.

Spacing Capitals

Since capitals have more complex shapes than lowercases, naturally the spacing between capitals is also more complex than lowercases. To make this complexity easier, we used an old method suggested by Sheila Waters in her book. To be more precise, in the "foundations of calligraphy" – a book written by Sheila Waters, she clearly showed how this method can be used in the calligraphy. Furthermore, if we can determine the optical beginnings and endings, then we can easily space all the letters as we do for the vertical letters like H. The principal of defining the optical lines is to draw a vertical line in the beginning and ending of each letter, so that this vertical line divides them into two equal areas *(Figure 12)*. Our measurement unit is the width of the crossbar of the letter H. (Waters, 2014). This brings us to the end of the calligraphy section. In the next chapter, we will shortly discuss the design and layout principles for calligraphy.

GE

You can see in this image the **gemoetrical ending (GE)** line of a round letter such as O and D

GE GB

OE

Here you can see the **optical ending (OE)** line. The colored parts have equal areas.

OE OB
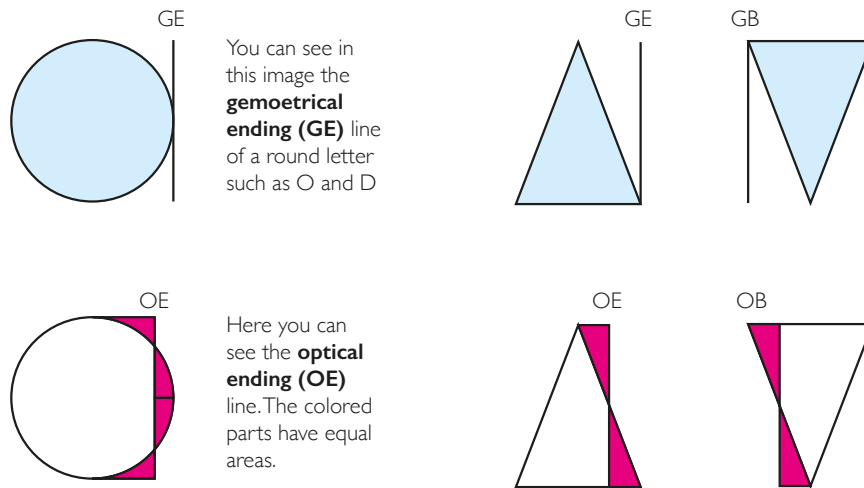
Figure 11: GB: Geometrical beginning, GE: Geometrical ending, OE: Optical ending, OB: Optical Beginning

3.5. Design and Layout

In this chapter, we covered the other important design and spacing themes such as page spacing (margins) and line spacing. With the help of this chapter, the student who has already a good basic understanding of calligraphy can complete a full calligraphic work.

Margins

Margins define the space between page edges and the text. A bad margin adjustment (too tight or too wide) will affect the work negatively. Therefore, a good margin is decisive for good work. The top and side margins can be the same but, for optical reasons the lower margin should be wider. (Johnston, 1917; Camp, 1978)

Standard Layouts

Here we showed four common used page layouts from easiest to more complex which are fairly enough for a beginner – Aligned left, centred, justified and asymmetrical centred (Waters, 2014; Hufton, 1995)

Word and Line spacing

Firstly, we showed the anatomy of each letter, their design and then drew them beautifully; secondly, we showed how to order them evenly, and this is called letter spacing; after completing the design of the word, we demonstrated how to align them evenly in order to finalize our work. The spacing between the words, or as it is commonly named,

word-spacing, as a principal should be the same as in letter-spacing case. In other words, like the spacing between letters, the spacing between words needs to be the same. The words need to be evenly spaced in conformity with the last letter of the previous word and the first letter of the next word. (Waters, 2014).

I technique for word spacing

To make it easier for everyone, especially for the beginners, we used a simple technic for even spacing. In this technique, we place an "i" between the words evenly as if we are writing just one word. *(Figure 13)* Being a simple technic, it is useful for the beginning stages, however, after making some progress (through practice), the student might not need it. We name this technic as "I technique" (Brown, 2012)

Double o technique for line spacing

We should space the lines evenly so that the ascenders and descenders don't overlap. To achieve this, we should add a one nib width space between the descender line of the first line, and the ascender line of the following line. We can simply formulate it by inserting double o's between the base line of the first line and the waist-line of the following line *(Figure 13)* (Camp, 1978; Waters, 2014).
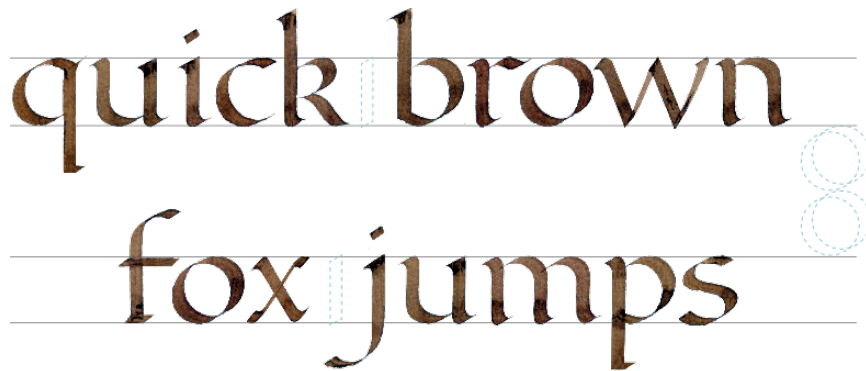
Figure 12

Rhythm in Calligraphy

Rhythm can be defined as the repetitiveness in the similar strokes. The more you achieve same repeated strokes and curves, the more beautiful your writing will be. Like Denis Brown says: "*Rhythm in writing is fundamental; even perfect letterforms are lifeless without it.*"

The word 'minimum' is a good exercise for the rhythm in calligraphy. In the example, the repeated strokes can be seen clearly.

4. Conclusion

Since calligraphy is the predecessor of today's typography, learning calligraphy is very essential for graphic design students, especially if they are focused on typography. Nonetheless, it is clear that most designers don't have a profound and practical knowledge of calligraphy. In this research, we didn't find any manual specifically designed for designers.

This project is aimed at introducing a practical guide with a modern look, which enables beginners, and especially the graphic design students and type designers, to fully understand and apply the foundations of classic calligraphy with less effort.

To achieve this, the Foundational Hand of Edward Johnston was chosen as calligraphic hand in this study, because it is a round and upright hand. Johnston set the geometrical rules of the ancient hand into its shape today.

Johnston developed the 'Foundational Hand' model by classifying letters according to their geometric similarity and therefore revolutionized the way of learning calligraphy. By learning this type of hand, you will understand the basic logic of letters and then it will be relatively easy to learn any other writing style whether it handwriting or a digital font.

Firstly, this study investigated various reliable sources of classical calligraphy, and identified necessary information and education methods.

Secondly, the obtained information and education methods have been analyzed and used for producing the basics of calligraphy in an easy and exciting way through modern and minimalist design.

In the design, eye catching sentences with keywords and clear illustrations are used. As such, calligraphy learners, especially beginners, can learn the principles of calligraphy with ease. To enhance the learning process, the fundamental calligraphic content is presented through practice and exercises along with the required theoretical background. Another important aspect is defining the rules, based on reliable sources, as clear as possible, since the beginner needs dogmatic norms rather than ambiguous expressions.

Throughout this work, the rules have been defined with minimum uncertainty possible, because it is much easier for the beginners to learn the precise rules.

After reading lots of methods from Johnston, Waters, Camp, Child, Goffe, Hufton, Madiavilla, Harris, a selection of the most adequate methods was made and when necessary, modernized, developed, sorted and classified into topics.

To achieve simplicity, we divided teaching methods into steps. The first step was to introduce the skeletal proportions of the letters. Thus, the shape, proportion and relationship of the letters can be easily seen and compared.

A good classification helps the student to distinguish the different forms and compare them. Learning and practising the letterforms group-wise is obviously easier than learning them letter by letter.

To facilitate the learning, the classification of the letters has been done based on the relationship with the letter 'o' and on the width of the letters as well.

One method is showing the letters on a grid with divisions. The basic grid is divided into four divisions for the lowercase letters, six divisions for the capital letters, and all the letters were shown on it.

The other method is 'coloured two-pencil method', which is used in the project to show the ductus.

Tackling the spacing problem is an important and difficult task. To make it easier for everyone, especially for the beginners, the following simple techniques have been used.

- I-technique for word spacing
- Double o technique for line spacing
- Optical beginning and ending lines for spacing capitals

The project of this thesis is tested and validated by various masters of calligraphy, and active users, such as students of architecture and design, through a workshop. The project has been improved by using the feedback of the above-mentioned groups.

Finally, this project led to a better system for learning calligraphy and it is very useful for calligraphy learners, especially beginners. After this dissertation it would be interesting to develop a practical guide for other calligraphic hands such as italic, gothic, copperplate and also designing manuals to transform calligraphy to modern digital fonts.

5. Final Considerations

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Johnston, Edward. *Manuscript & Inscription Letters for Schools and Classes*. Digital image. *Internet Archive*. Henry Williams Sage, 01 Jan. 1891. Web. 10 Dec. 2017.

Johnston, Edward. *Writing & Illuminating & Lettering*. Eight ed. London: John Hogg, 1917. *Library of University of St. Michaels College*. Web.

Mediavilla, Claude. *Calligraphy: From Calligraphy to Abstract Painting*. Trans. Alan Marshall. Wommelgem: Scirpus, 1996. Print.

Standard, Paul. *Geometry Can Produce Legible Letters: But Art Alone Makes Them Beautiful*. 1979. Print.

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5.3. Appendices

Appendix A

Validation through Calligraphers

First step was to validate the choices of calligraphic themes and to control the used educational methods. To reach this aim, several experienced calligraphers were asked to give a detailed constructive critique for the educational methods used in the thesis and the design choices as well. Through this validation, all covered themes were controlled and critiqued thoroughly by experienced calligraphers.

Questionnaire for Calligraphers

1. Are the explanations and illustrations clear and simple enough, so that everyone can easily follow and learn the foundational hand alphabet without the need for high language skills? If your answer is negative, please make your suggestions / please justify.

2. Are there sufficient practices and exercises to understand the foundational hand? On the other hand, is there sufficient space for the required amount of theory?

3. Do you think all of the important topics about Foundational hand was covered in this manual?

4. In the practical guide, we started with roman minuscule letters, rather than starting chronologically Roman Capitals. Do you think it is better to start with minuscules?

5. We started practicing the alphabet, first and foremost, with the help of a one-dimensional skeletal form and then by analyzing and using letterforms written with a broad-edge pen for an easier understanding. Do you think it is a correct sequence to teach foundational hand?

6. Do you think this manual presented through easy illustrations, key words and short sentences, will be effective for self-learning of beginners?

7. We used a grid that is divided according to the quantity of nibs to show the letter-width clearly. Do you find it to be a good way to show this?

8. Table 1. Groups of letters (Waters)

Group 1	Letters which have only a small part of the o omitted from their bowls are	o b c d e p q b
Group 2	Letters which retain two arcs of the o are	a *and* s
Group 3	Letters which retain one arc of the o are	n m h k l t r f j u

	Letters with no curves but which relate to the foregoing letters are	
Group 4		v w k x y i z"

Table 2: Simplified Letter Classification

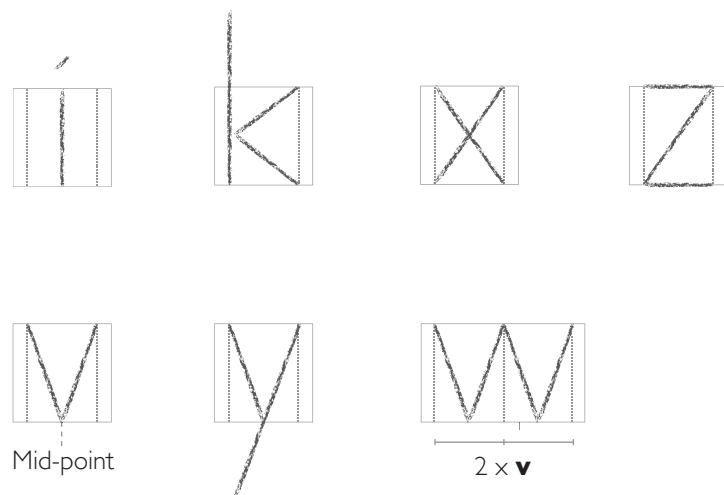| Group Name	Description	Letters
Round Letters*	The letters which contain three parts of the circle o	o c q d e p g b
Rectangular-Round letters	The letters which contain one or two arcs of the circle and written in basic grid except m	r n h m k f l t j u s a
Diagonal Letters**	The letters with no curves	I k v w x y z

* Woodcock, Hufton

** Hufton, Goffe,

One of the classifications in this study, shown in Tab. 2, is based on the classification of Sheila Waters (table 1). Some simplifications such as combining Group 2 and Group 3, and new group names have been introduced.

Do you think this classification is simple and complete?

9. The other classification this study aimed at is based on the width of the letters.
   Table. 3

Group 1	Average Letters ca. 75% of full width of o	n g r n k l h a s u
Group 2	Wide letters ca. 85% of the o	c d e q b p t f
Group 3	Full width letter 100%	o
Group 4	Very wide letters ca. 140%	m w

Do you think this classification is correct?

10. We used as ductus "two-colored pencil". Do you think it is an effective and modern approach?

On this basic grid you can see the width of letters. Each small square refers one nib-width
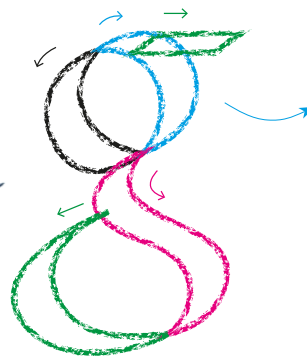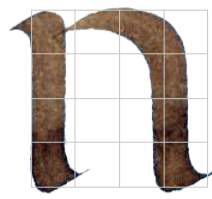
11. Please, suggest or add questions that you believe to be relevant for the improvement of the project!

Validation by Sheila Waters

About the calligrapher

Sheila Waters (born in England, in 1929) is a calligrapher and teacher. She graduated from Royal College of art in London. At twenty-two, she was elected a fellow of the Society of Scribes and Illuminators. She is the first president and founding member of the Washington Calligraphers Guild. She is one of the strongest members of the Edward Johnston's ecole. (Wikipedia)

Her general remarks and overall critiques:

"Overall you have done a very good presentation, especially with your arrangement and graphics."

"The best compliment I can give you is that I will try it out on my beginner students and I am sure they will better understand the principles of Roman Caps and Minuscules after studying it in the way you have presented it."

"I have been a "hard taskmaster" as the saying goes, not letting much slip in critiquing, and you have taken it so well and been very willing to change a lot, especially the very subtle things, which I think are so important. Most people are too easily pleased with themselves and miss the subtleties these days, so produce low quality work. We need more of the kind of research you have done and I hope your examiners will realize what a complex subject this is and how much work and effort you have put into it.

In the following section, the refinements, which have been done after Waters' feedback, can be seen. Each refinement is accompanied by firstly the old version, then the changed version, and the comment of the calligrapher as well.

1. **Even Spacing between letters**
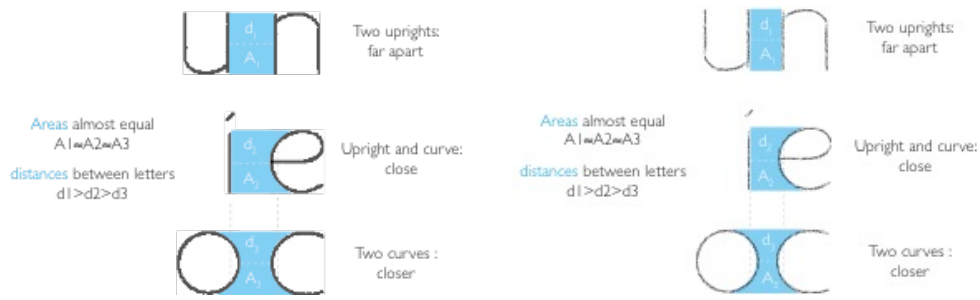
"The letters are spaced too far apart. Unit should be half a square wide, not a whole square"

2. Control of ink flow
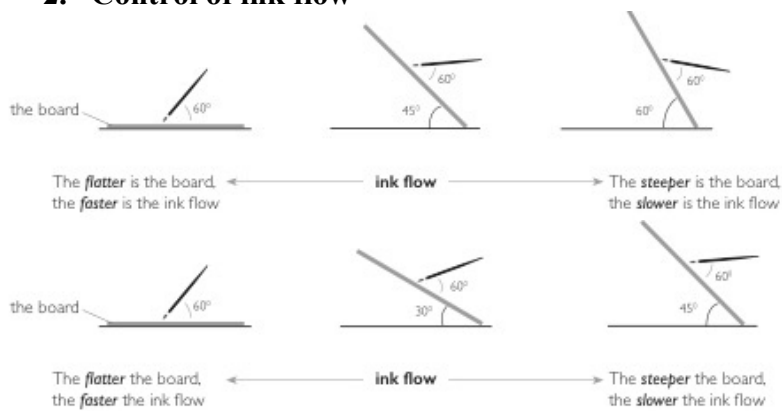
"60° is much too steep. Ink flows backwards. I prefer 30° slope usually, rather than 45°"

3. Curved serif p

"A curved exit serif is gets sloppy and weak"

4. Ductus: Sequence of the strokes
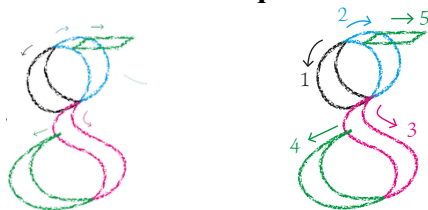
"Stroke order and directions badly needed and you have them but too small to be noticed. I missed them at first."

5. Grid for Capitals
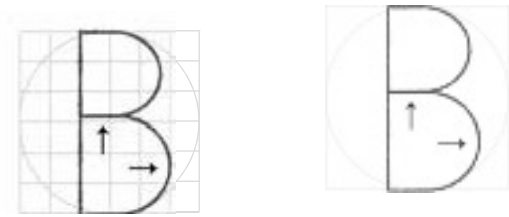
"Your six squares work for when you use the broad pen but not for skeletons. So I would not introduce squares yet."

6. Optical Illusions

"Not enough difference to show your point. (Only B) does show it"

7. Spacing Capitals

"Shadowing inside is confusing. And (Showing the area as optical area) is not clear as it could be thought to be the insides of letters between lines and not between the end of one letter and the beginning of the next"

8. Layouts and margins

| a | b | a | b |
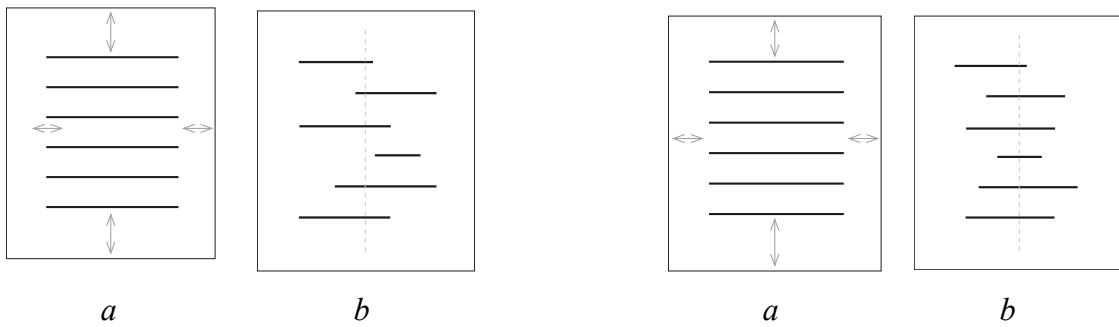
"In all these diagrams your top and bottom margins look too equal."

"(Asymmetrical centered layout – Figure b) lines pulled apart too much"

9. Rhythm exercise: the word "minimum"
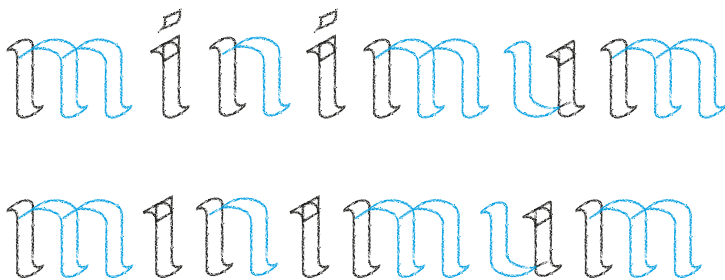
"This is not accurate as your rhythm is uneven. Spaces are wider than n"

10. The letter x

"looks very light, so is weak"

11. The direction to place the nib

"You give no direction to place nib in main stroke. Just diagrams here are not enough"

The diagram below has been added.

Place the nib **here** in main stroke of the letters
r n m h b p k

Validation by Matthew Wright

About the calligrapher

Matthew Wright is a calligrapher, who lives in the USA. He started 'Calligraphy Critique' Facebook group. By the suggestion of Sheila Waters, we asked for his critique. Waters states that Matthew has a good (calligraphic) eye.

Wright has also full access to all practice document and gave an overall-detailed feedback. In the following examples, some modifications after Wright's feedback are shown.

1. **Leg of k**
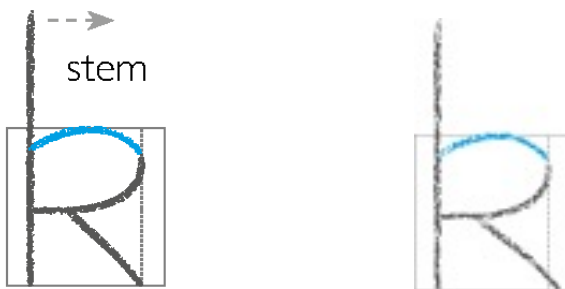
"Leg of k should be a bit longer"

2. **Abbreviations of D1 and A1**
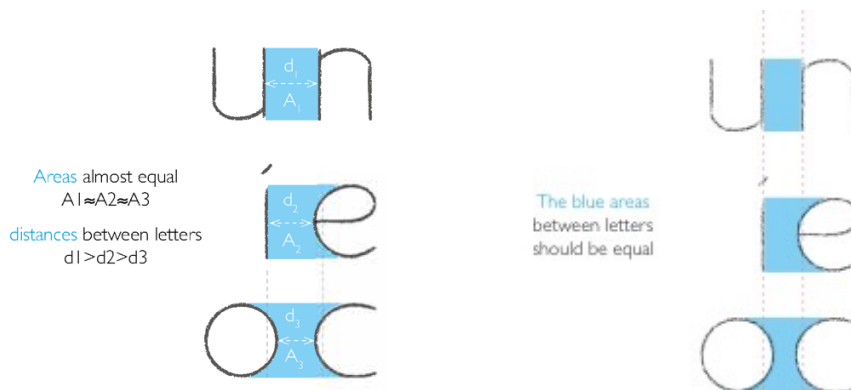
"Abbreviation of d1(distance) and A1 (Area) are confusing. The new looking is more clear."

3. **The color choice**
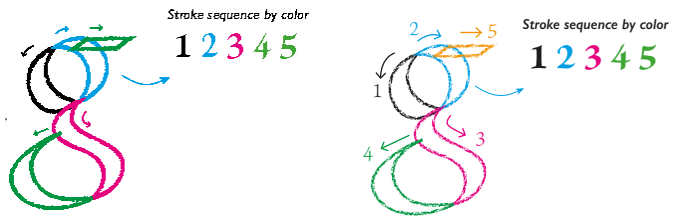
"All strokes should have different color."

4. The width of the capital A

"A is very narrow"

5. Appearance of the grids of the Capitals
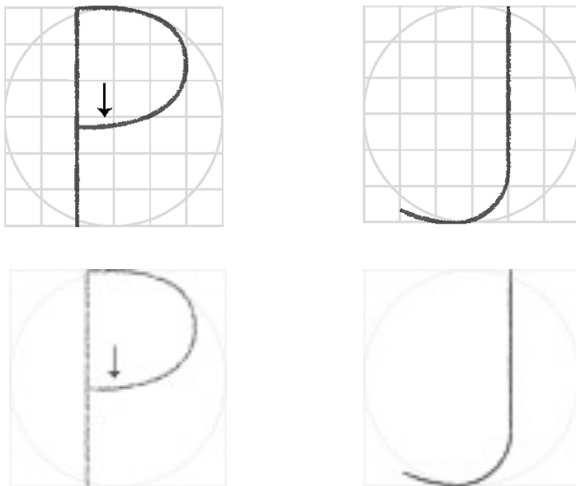
"First grid system is too complicated. The second one is more clear."

About the calligrapher

Denis Brown is a worldwide renowned calligrapher, who lives in Dublin, Ireland.

Brown's Feedback

"I found it commendable, particularly if your studies have been self-taught from books. Although, I don't care to answer all the questions as you laid them out, I am happy to offer some of my opinions.

You appear to cover letterform and spacing well, however I did not notice any information about fluency, which is another key aspect even in writing a basic form like foundational. None of your images demonstrate an awareness of this aspect. I believe that even beginners should be made aware of fluency and rhythm in writing. (I am not referring here to speed techniques as I demonstrate in my advanced italic to polyrhythmic calligraphy program. However, my short film on "Rhythm" may still apply to Foundational Hand).

You have not pointed out any of the history of this script, particularly the studies of Edward Johnston of Harley Ms. 2904 in the British Library (The Ramsey Psalter); nor his teaching, nor the work and teaching of his students, most notably Irene Wellington.

The study could be greatly improved with illustrations and discussion of actual pieces of work by a variety of expert calligraphers. In fact, a thoughtful inclusion of this could address both problems I list above.
In my own teaching of Foundational Hand, for example, I show and discuss the difference between fluent writing by Edward Johnston and the more precise and regular examples of Ann Camp. Although Ann Camp had great expertise in teaching, she in fact envied the lively fluency of Johnston's writing, and in her teaching she always pointed out this aspect by showing it in work of calligraphers she admired. (One of the earliest small "honours" I received from her was, in my first of 3 years' full time study with her,

was to be asked to write foundational hand in front of the second and third year students! It was so they could see rhythmic writing even applies to Foundational hand.)

There appears to be no mention of punctuation, and even an avoidance of the proper use of it in your examples.

There are no suggestions of the purpose of studying Foundational hand, nor of any practical applications for it. In today's Instagram informed world of calligraphy enthusiasts, it is clear that many have no sense of purpose for their calligraphy, other than to make practice sheets. Johnston and his followers created a demand for handwritten documents from manuscript books commemorating names of those who lost their lives in the World Wars, to illuminated addresses and presentation scrolls, to framed panels quoting meaningful sections of poetry and prose. Johnston was extremely strict about the making of "things", that is making practical and functional objects using calligraphy, rather than calligraphy produced for its own sake. One of the great dilemma's for calligraphers today, now that there is no longer demand for the kind of work done in and following Johnston's era, is the question of purpose in calligraphy. What is it for?

I hope you find my options to be provocative in a good way, and that they may help you further develop the serious and good work you are doing; and I wish you success with it."

Appendix B

Validation Through Designers

Questionnaire

1. Is the typography used in the project appropriate to the context?

2. Do you think the general design is modern and simple enough?

3. Do you think the illustrations are sufficient to express the idea?

4. Do you think the colors are used effectively?

5. Are the paper size (A4) and margins chosen well?

6. Please, suggest or add questions that you believe to be relevant for the improvement of the design!

Validation by Emre Telli

About the Designer

Emre Telli is a designer and Art-Director, who lives in Hamburg.

Is the typography used in the project appropriate to the context?

The chosen typography corresponds perfectly with the given task of explaining the fundamental basics of calligraphy for beginners.

Do you think the general design is modern and simple enough?

The whitespace makes it easy to read and understand the content very quickly, due to non-interrogating graphic elements, then the necessary ones.

Do you think the illustrations are sufficient to express the idea?

It is obvious that these are handwritten drawings, which makes this method of explanation not only better in understanding but also makes an authentic reproduction of the contents.

Do you think the colors are used effectively?

The blue color represents a fresh approach as otherwise the brown color. The contrast is well chosen.

Are the paper size (A4) and margins chosen well?

The content fits the chosen format. Minor remarks in the pdf file attached.

Please, suggest or add questions that you believe to be relevant for the improvement of the design!

Further minor notes are marked in the attached pdf file.

Appendix C

Validation by students

The Project is validated through active learners. Hence, two workshops were organized. The focus group was the design or architecture students who have some or very little calligraphic experience. One workshop was composed of eight sessions (approximately six hours). The project was introduced theoretically as well as practically through these workshops. In other words, the students had also an opportunity to practice the covered themes with real calligraphic materials. The survey and their responses are included in the appendix.

Survey for the active learners

Name & Surname:
University & Faculty:

1. Are the **explanations** and **illustrations** clear and simple enough, so that everyone can easily follow and learn the foundational hand alphabet without the need for high language skills?

2. Are there sufficient **practices** and exercises to understand the foundational hand?

3. On the other hand, is there sufficient space for the required amount of **theory**?

4. Do you think this manual presented through easy illustrations, key words and short sentences, will be effective for **self-learning** of beginners?

5. Is the **typography** used in the project appropriate to the context?

6. Do you think the **general design** is modern and simple enough?

7. Do you think the **illustrations** are sufficient to express the idea?

8. Do you think the **colors** are used effectively?

9. Are the **paper size** (A4) and **margins** chosen well?

10. We used a **grid** which is divided according to the quantity of nibs to show the letter-width clearly. Do you find it to be a good way to show this?

11. We used as ductus **"two-colored pencil"**. Do you think it is an effective and modern approach?
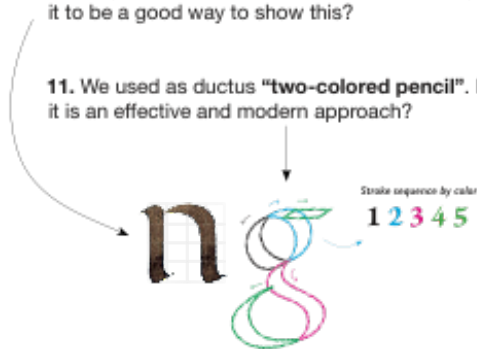
Stroke sequence by color
1 2 3 4 5

Please, suggest or add questions that you believe to be relevant for the improvement of the project!

"Emojis by Freepik"

The Results of the survey

Question	😵	🙁	😐	🙂	😎
1. Are the **explanations** and **illustrations** clear and simple enough, so that everyone can easily follow and learn the foundational hand alphabet without the need for high language skills?				2	7
2. Are there sufficient **practices** and exercises to understand the foundational hand?			2	4	3
3. On the other hand, is there sufficient space for the required amount of **theory**?			1	6	2
4. Do you think this manual presented through easy illustrations, key words and short sentences, will be effective for **self-learning** of beginners?				4	5
5. Is the **typography** used in the project appropriate to the context?				3	6
6. Do you think the **general design** is modern and simple enough?		1		5	3
7. Do you think the **illustrations** are sufficient to express the idea?				4	5
8. Do you think the **colors** are used effectively?			3	2	4
9. Are the **paper size** (A4) and **margins** chosen well?			3	3	3
10. We used a **grid** which is divided according to the quantity of nibs to show the letter-width clearly. Do you find it to be a good way to show this?			1	2	6
11. We used as ductus **"two-colored pencil"**. Do you think it is an effective and modern approach?				2	7

Stroke sequence by color
1 2 3 4 5

Appendix D: The Project

MATERIALS

THE DESK

"Always write at a slope" (Edward Johnston)

The Board

45°

Writing at a slope is more comfortable and ink flow is easier to control.

Writing sheet

Board
about A2 size

Guard Sheet
protects the writing sheet against the skin oil of hands and drops of ink.

Soft Pad
from several smooth papers. It is difficult to write on a hard board.
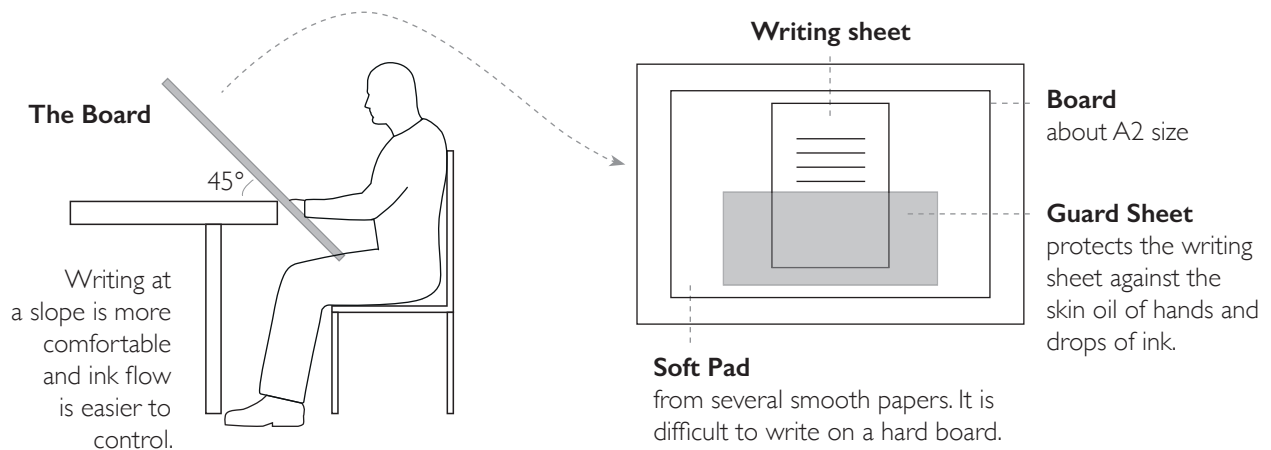
PEN

For beginners, it is recommended to start with a felt tip pen or a Pilot parallel pen which is easy to use. But for professional works, it is better to use metal nib pens such as Brause.

Metal nib
produces sharp lines and rich ink flow. It is good for professional works.

There are several brands such as Speedball C William Mitchell Leonardt Tape.

This is a Brause nib. It is good for large size writing because of its stiffness.

Reservoir
can hold a small quantity of ink to aid faster writing.

Pen Holder
should have a long-round barrel in order to roll in the fingers.

INK

Liquid carbon-based inks are the best because they flow freely.

It should be thin and able to produce hairlines.

Schmincke

Winsor & Newton

Don't use waterproof inks since they don't flow freely and can clog the nib.

Walnut ink is a brown ink and also recommended.

Alternatively one can use gouaches and watercolors.

PAPER

For Practice, a quality copy paper is enough.

For a careful work, cotton hand made papers are recommended.

A little texture gives nib a good grip on the paper.
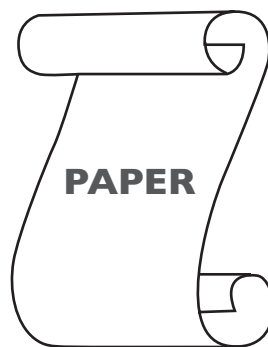
No bleed! Paper should not let the ink bleed.

b

a bleeding letter

Try and find your best! You should try different varieties of papers to find which ones are suitable.

2 LOWERCASE
Skeletal Proportions

*t*The skeletal proportion is the basic structure of the letterforms. The shape, proportion and relationship of the letters can be easily seen and compared.
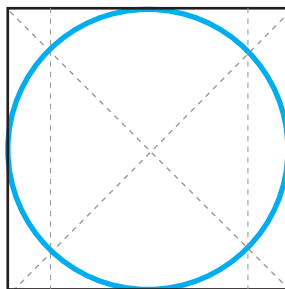
Our basic square grid, with a circle. On this basic grid the relationship between letters can be compared more easily.

*GROUPING THE LETTERS ACCORDING TO THEIR RELATIONSHIP WITH THE KEY LETTER **o***

1 GROUP I
Round Letters

The letters which contain three parts of the circle **o**
o c q d e p g b

Repeated parts of the letter **o** are shown with blue color.

Top and bottom of
c is slightly flatter

c

⚠️

Watch out for
the difference
with **d**

bottom
is slightly
flatter
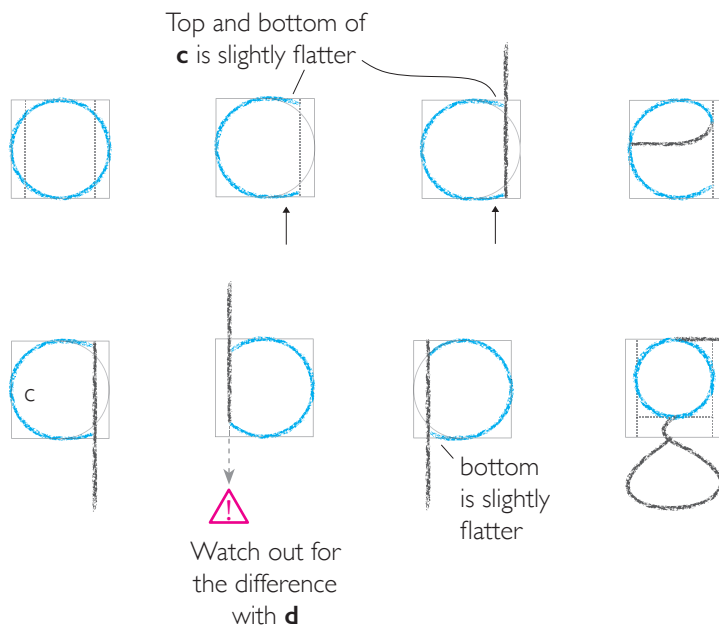
2 GROUP II
Rectangular-Round Letters

The letters which contain one or two arcs of the circle of **o** and written in a rectangle in a basic grid
r n h m k f l t j u s a

Similarity of the repeated parts of the **o**, the stems and the bows of the letters are crucial for the **evenness** and **consistency.**

bow

2 × **n**

stem

3h

4h

⚠ length of t

baseline

Top and bottom of
s are slightly flatter.
Compare with o!
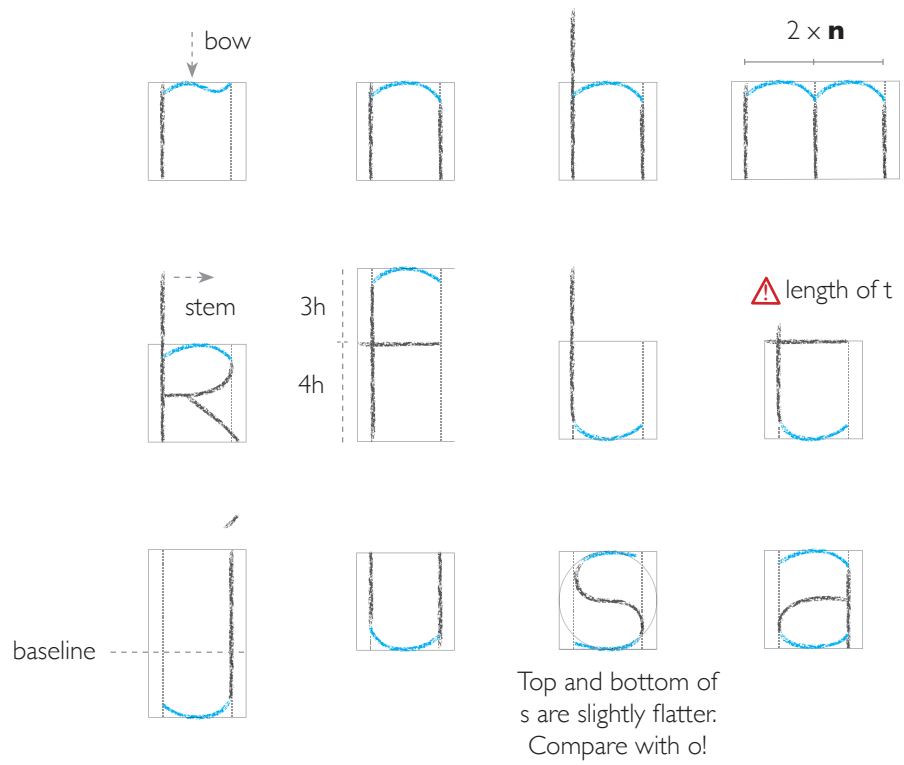
3 GROUP III
Diagonal Letters

The letters with no curves
i k x z v y w

Mid-point

2 × **v**
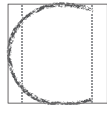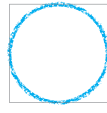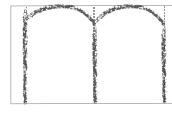
Average 75%	Wide 85%	Full 100%	Widest 140%
n	a	o	m
n, g, r, n, k l, h, a ,s ,u	c, d, e, q, b, p, t, f	o	m, w

*e*Even spacing between letters is essential for calligraphy, and sometimes perhaps more important than beautifully drawn individual letters.

There is no specific rule for even spacing. "*It is sufficient for the beginner to take care that two curved letters are made very near each other, and that two straight strokes are spaced well apart*" (Johnston,77).

It is rather difficult for beginners to achieve perfectly spaced letters.
"*The trained eye is the only sure judge of letter spacing*" (Mediavilla,26).

Two uprights: far apart

The blue areas between letters should be equal
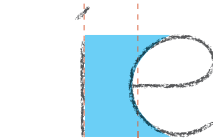
Upright and curve: close
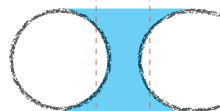
Two curves : closer

Skeletal Proportions
of Lowercase Letters

Two uprights
far apart

Upright & round
close

Two rounds
closer

* Use a soft pencil

1 Carefully trace over
the letters in this
line.

2 Now, copy the
above traced letters
between these two
lines

Observe the
spacing between
letters, words and
lines

Line spacing

x

2x

x

Observe the
spacing of
blue-drawn letters
carefully

abcdefghijklmnopqrstuvwxyz.

the arrangement and spacing

of letters are just as important

as the individual letter unit.

the average space between

two words is less than the

width of the letter.

3 Now rule a page and
write what you wish

3

LOWERCASE
with broad edge pen

Start with a wide nib
Choose a 3 mm nib or wider
after achieving confident writing.
Narrower ones can be used gradually.

Clean the nib
from the factory lacquer by:
- dipping in boiling water or,
- holding in a flame for
a few seconds

3 mm
Brause

2 mm
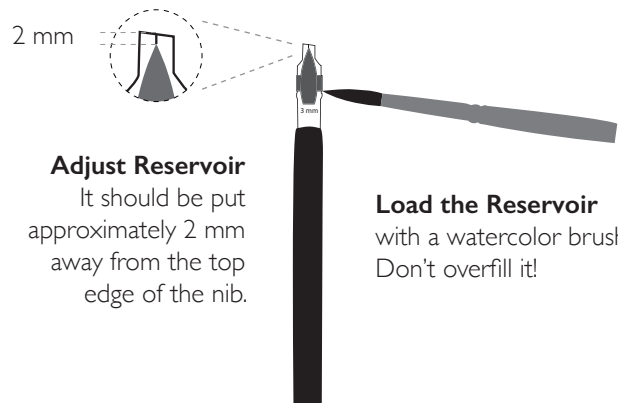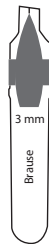
Adjust Reservoir
It should be put
approximately 2 mm
away from the top
edge of the nib.

3 mm

Load the Reservoir
with a watercolor brush.
Don't overfill it!

Control of ink flow

the board

60⁰ → 60^0

30⁰ → 30^0
60⁰ → 60^0

45⁰ → 45^0
60⁰ → 60^0

The *flatter* the board,
the *faster* the ink flow

← **ink flow** →

The *steeper* the board,
the *slower* the ink flow

?
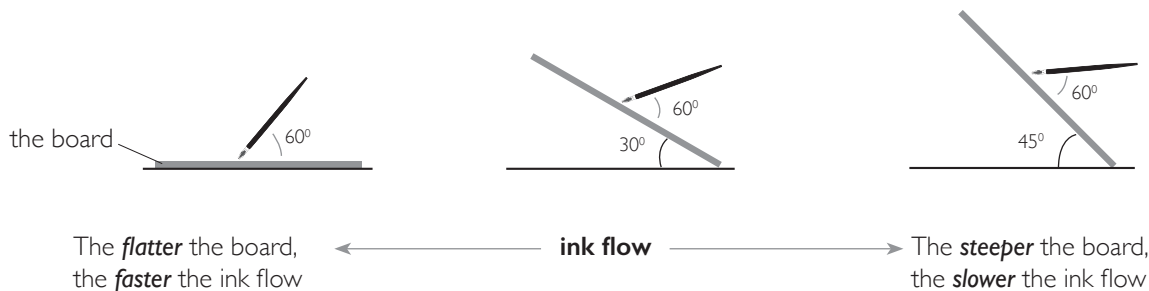
Still having
problem
with ink flow

is the nib clean?
wash and wipe it with a soft rag

pressing the pen too hard?
light pressure is enough

is the paper too rough?
change it with a smoother one

**scratch the nib back and
front on the paper**

is the ink too thick?
add some water

is the nib new?
hold it in flame for seconds

adjust the reservoir

is the paper dirty?
use guard sheet

Pen Angle

Different pen angles lead to different constructions. 30° pen angle creates neat thin and thick strokes, and moreover it gives a good contrast between these strokes.

thin

0^0

30^0

thick

3 mm

3 mm

3 mm

45^0

3 mm
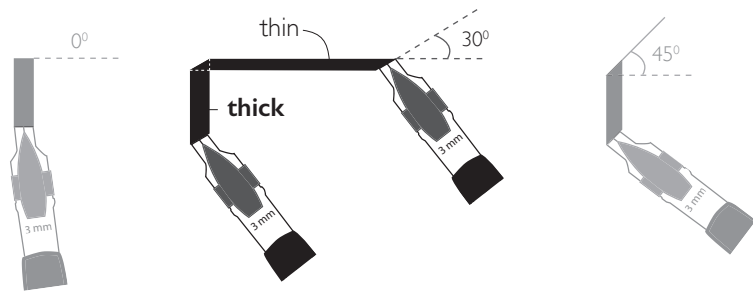
45^0 Pen angle for the thick diagonals

In order to achieve the same thickness with stems we should use steeper pen angle for the diagonal strokes
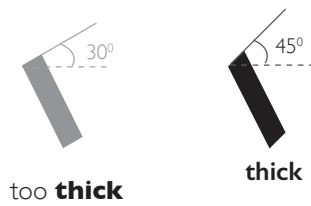
30^0

45^0

too **thick**

thick

Anatomy of letters

serif

ascender

ascender-line

waist-line

x height
4 nib

n p b

bowl

base-line

descender 3 nib

descender-line

nib-width 3 mm

3 mm

30° Pen angle

*On this basic grid you can
see the width of letters.
Each small square refers
one nib-width*

1 2 3 4 5

GROUP I
Round Letters

The letters which contain
three parts of the circle
of **o**
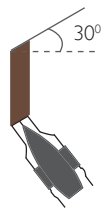
30⁰ **Pen Angle:**
Do not change the angle!
Always 30°

nib-width 3 mm

How to do serifs?

+ = **bracket**

ascender
3 nib

x height
4 nib

descender
3 nib

ocdeqbpg

starting point

Lemon innershape

crisp joins

4 nib-widths

1

2

top of **c** is a bit flattened. It does not follow the circle of **o**

1

2

c + stem

entry and exit serifs are same circle

3   4

2

1

2

1   3

top of **q** is flattened like **c**

1

2

3

strong and crisp joins

1

2

3

same curve like b

A bit flattened. Not the same curve of o

1

2

3

2   →5

1

4   3

aligned

2 GROUP II
Rectangle-Round Letters

The letters which contain
one or two arcs
of the circle of **o**
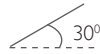
Pen Angle:
30° 30° with exception
of tail of **k**: 20⁰

Letter-width:

approximately 3.5 nib-width

ascender
3 nib

x height
4 nib

descender
3 nib

nrmhfk

ultjsa

n has the
same arc as
the key letter **o**

1 2
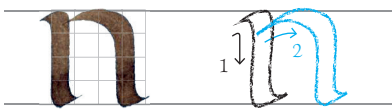
r starts like **n**
but turns up

1 2

1 2 3
n n

1 2 3
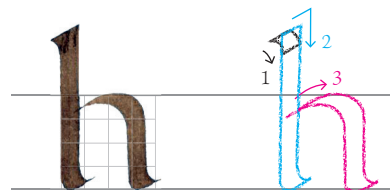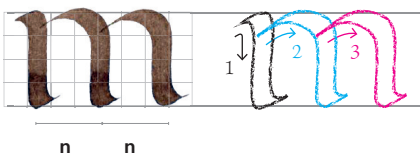
Place the nib **here** in main
stroke of the letters
r n m h b p k

Top is like **c**

The crossbar and
the foot are thin.
A 30° pen angle

serif is smaller
than others

Tail: 20⁰   **Pen angle
exception**

same foot as **t**

height
about 5 nib

The crossbar
of **t** is the
same as the
crossbar of **f**

Upper stroke of
s is shorter than
bottom stroke.

Pen Angle Thick diagonals: 45°
Thin diagonals: 30°
Diagonal of **z:** 0°
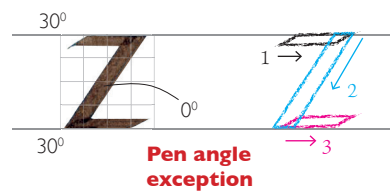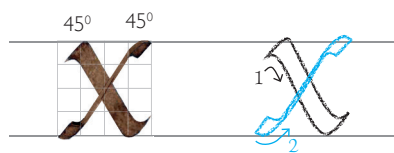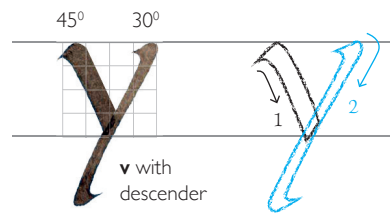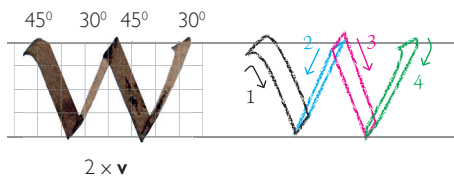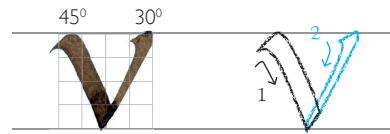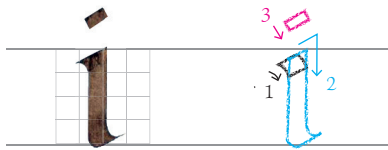
ascender
3 nib

x height
4 nib

descender
3 nib

ivwyxz

45° 30°

45° 30° 45° 30°

2 × **v**

45° 30°

v with
descender

45° 45°

30°

30°

0°

**Pen angle
exception**

abcdefghij
klmnopqr
stuvwxyz

Now try yourself!

Spacing Problems

a As already mentioned, even spacing is as important as beautiful letters. In this part, we will see some of the spacing problems and their solutions. The letters which do not have obviously vertical or curved strokes should be spaced with extra care. These letters are:

c e a s k r l t f v w x y z

c is an open letter and has a large inner space. To tolerate this, the next letter should be spaced much closer. In this case, we cut out the entry serif of n, which reduces legibility greatly.

a is an open letter as well, but the open space is at the beginning. Therefore, we should take care of the letter preceding **a**

e is also an open letter like **c**, but the middle stroke of **e** closes the space a bit more. The next letter should be spaced a bit more than the case of **c.**

s has open spaces at the beginning and end. Therefore we should care about the preceding and following letters.

rn — the serif of **n** is omitted to avoid the collision

r is the letter which has the largest space at the end. We should space the next letter really close.

rt — the crossbar of **t** is elliminated from the left side

rl — the second stroke of **r** is made a bit shorter

rv — **r** is shorter and the first stroke of **v** turns back

2
1
tflyxz

t W f l x z y are also open letters which have similar spacing problems. All should be spaced closely. In some cases, extra creative touches are need:

1. Connect the crossbars to achieve a smooth crossing.
2. Top of **f** touches **l** and creates a ligature, and the entry serif of **l** is omitted.

This is a template prepared for you.
Trace it carefully with your 3 mm-wide pen.

the trained
eye is the only
sure judge
of letter
spacing

Claude Mediavilla

Now it is your turn.
Write the same phrase on the pre drawn lines
with a **3** mm-wide nib.
Be careful with the even spacing.

the

This is an another template.
Trace it carefully with your **3** mm-wide pen.

the average
space between
two words
is less than
the width of
the letter o

Edward Johnston

A new challenge:
Write the same phrase again
but without pre drawn lines.
You can draw your own lines.

4

CAPITALS
Skeletal Proportions

We use the same base for the Capital letters like lowercases.
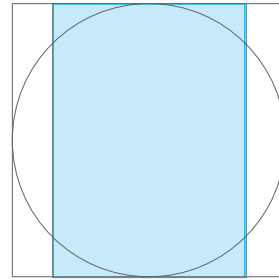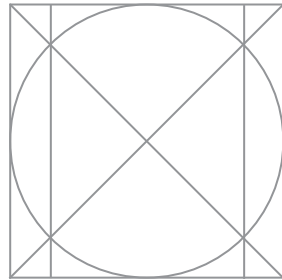
The letters in Group 2 are drawn in this blue rectangle

Rectangle

GROUPING THE CAPITALS:
THE CAPITALS ARE GROUPED ACCORDING TO THEIR WIDTH INTO FOUR GROUPS.

ROUND: O Q C G D
Rectangular: H N T U A V X Y Z
Narrow: I L F E P R B J S
Wide: M W

1

Group 1
Round Letters:
The letters which contain at least a half bowl of the circle of the key letter **O.**
The average width is ca. 5 out of six of full width, except **O** an **Q**

flattened

G

C
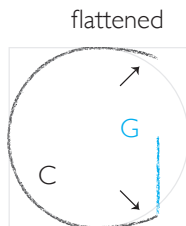
C and **G** follows the left circle of **O**

But the right side is slightly flattened

flat
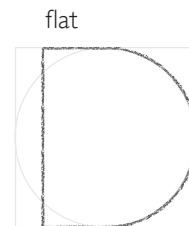
2

Group 2
Rectangular Letters:
All the letters in this group are drawn in the rectangle which you can see in the basic grid on the previous page.

The width of all the letters are about equal ca. 4 out of six of full width.
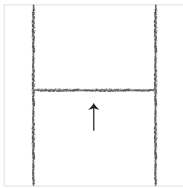
The crossbar of **H** is slightly above the geometrical center to provide optical balance
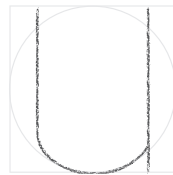
U follows the bottom circle of **O** inside the rectangle.
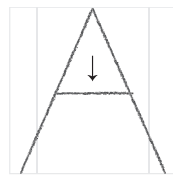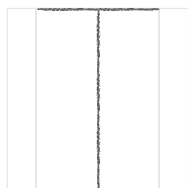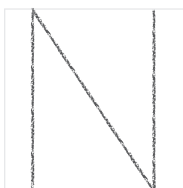
The cross stroke of **A** is slightly below the center to produce balanced counter spaces
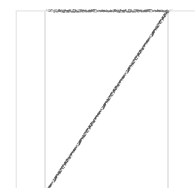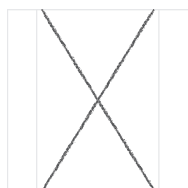
3

Group 3
Narrow Letters
The average width of this group is
a half of full (3 small squares) width
except **L E K R,** which are slightly
larger than the others.
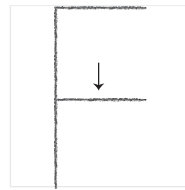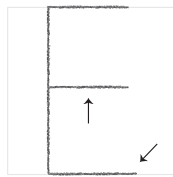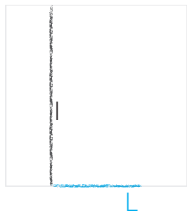
Upper and
middle strokes of
E have the same
length as **F**, but
the lower stroke
is a bit longer.
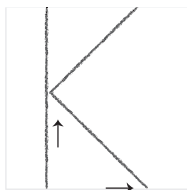
The middle point of
K is slightly above
the geometrical
centre.
The leg is a bit
longer than the arm.
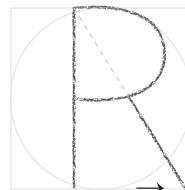
Middle point of **R** is
on the center line.
The leg is aligned
with the top corner.
The length of **R** is a
bit wider than the
others.
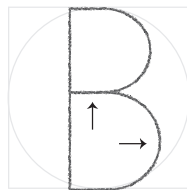
Middle point of
B is slightly above
the geometrical
centre.
And lower bowl
is larger than the
upper bowl

shorter

longer
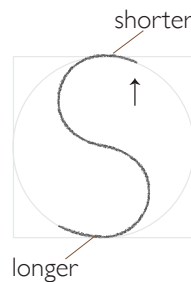
The upper stroke
of **S** is narrower
than the lower
stroke to achieve
optical balance.
The bowls are
the same.
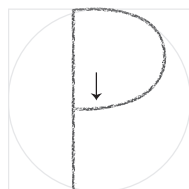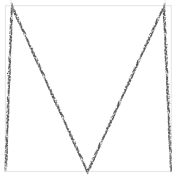
You can see the **V** in the centre of **M**. **M** has the same width as **O.**
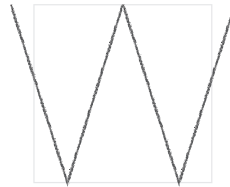
The widest member of this Alphabet. Formed by two **V**'s which are slightly narrower than standard **V.**

ABCDEFGH

IJKLMNOPQRS

TUVWXYZ

LETTER SPACING
CAPITALS MAY BE FAIRLY
WIDELY SPACED WITH-
OUT ANY GREAT LOSS
OF READABILITY

LETTER

C

W

O

O

CAPITALS MUST BE
SPACED SO THAT THEY
APPEAR TO HAVE
EQUAL AREAS
BETWEEN THEM

C

S

A

E

B

CAPITALS
with broad edge pen

1 GROUP I
Round Letters

30°
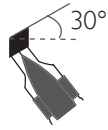
Pen Angle:
30° except
for the tail of
Q 20°

Letter-Width:
O Q: 6 nib-width
C G D: ca. 5 n-w

Start here!
ca. 1/2 nib
from top.
Lemon inner
shape like
lowercase **o**
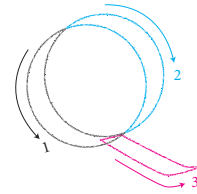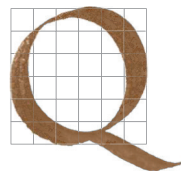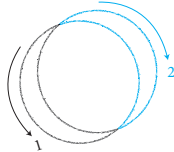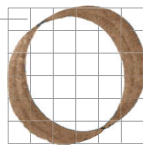
Be careful with
the joins!

**Pen angle
exception**

⚠ Tail: 20°

Upper stroke
does not follow
the circle of **O**.
The first stroke
is the same as
the first stroke
of **O**

flatter

flatter
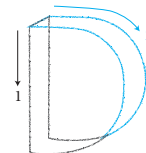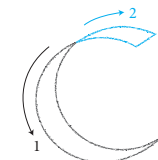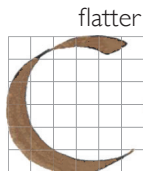
The second
stroke starts
horizontal then
turns down

First draw a **C**
and add the
third stroke!

flatter

aligned
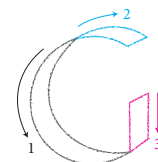
2 GROUP II
Rectangular Letters
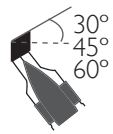
Pen Angle:
30° except:
N: 60°
Right diagonal of
A V X Y: 45°
2nd Stroke of **Z**: 0°

30°
45°
60°

Letter-Width:
ca. 4.5 nib-width

Crossbar is above
geometric center
Cross stroke is thin.
30° Pen angle!
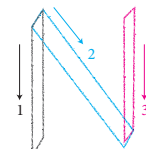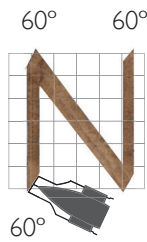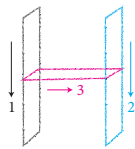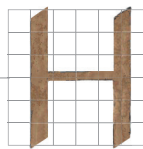
1st and 3rd strokes
should be thin. Use
steeper pen angle
such as 60°
All strokes are 60°

60°   60°

60°

All horizontal
strokes should
be thin for
optical balance
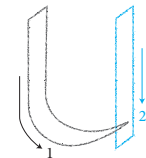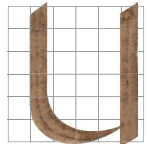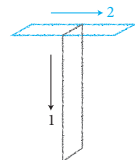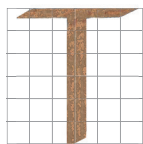
1st and 3rd
strokes have
almost the same
thickness

45°
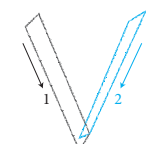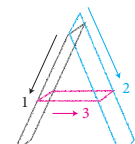
Left to right moving
diagonal strokes of
A, V, X, Y have a
45° pen angle.

45°

45° 30°

Second stroke is
a thin stroke. Use
30⁰ pen angle

45° 30°

30°
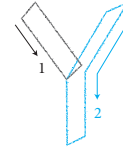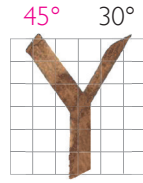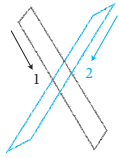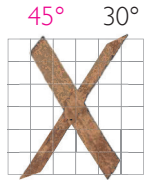
Diagonal of **Z**
has a 0° pen
angle

⚠️

30°

0°
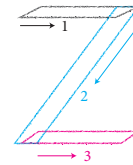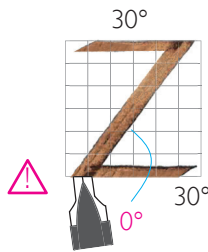
3

**GROUP III
Narrow Letters**

30°
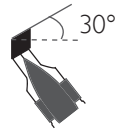
Pen Angle:
30° except for
the tails of
R and **K** 20°

Letter-Width:
ca. 4.5 nib-width

L could be drawn
in one or two
strokes.
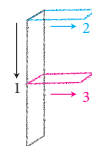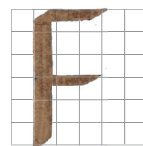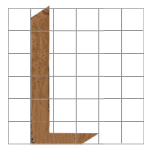
Horizontal
strokes are
thinner.
Cross stroke is
slightly below
centre

Cross stroke is slightly above centre
Bottom stroke is a bit longer than other horizontal strokes
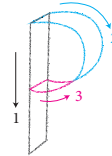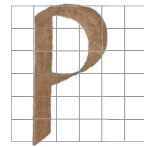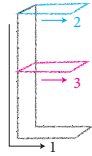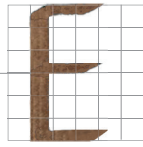
Cross stroke is slightly below centre

Do not touch or just slightly touch the stem!

Tail: 20°
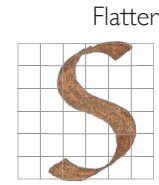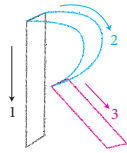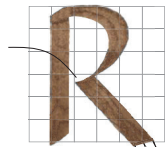
Flatter

Flatter

The upper bowl is smaller than the lower one.
The bowls are flattened.

The leg of **J** should be slightly flattened. It does not follow the curve of **O**
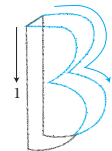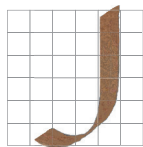
The upper bowl is smaller and shorter than the lower one.
Optical centre is slightly above the geometrical centre

The tail needs a flatter pen angle such as 20° to avoid being too thick

20°

20°
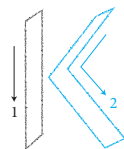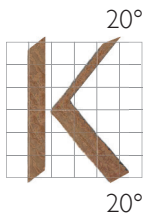
2nd stroke of **K** does not touch or just slightly touches the stem.

30^0
45^0
60^0
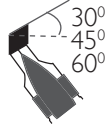
Pen Angle:
30° except,
Left diagonals 45°
1st Stroke of M 60°

Letter-Width:
ca. 7-8 nib-width

1st and 3rd strokes are thin.
2nd and 4th strokes are thick.
Be careful with the
pen angle variations!

45^0 30^0

60^0

45^0 30^0
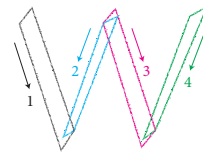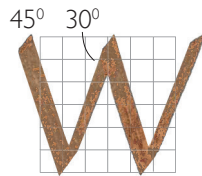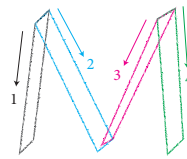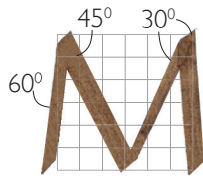
Two narrower
Vs are drawn
together.
The largest letter
of the Alphabet.
Take extra care
of the joins!

Relationship of Lowercases and Capitals

ascender
3 nib

7 nib

6 nib

4 nib

x height
4 nib

descender
3 nib

A d p x
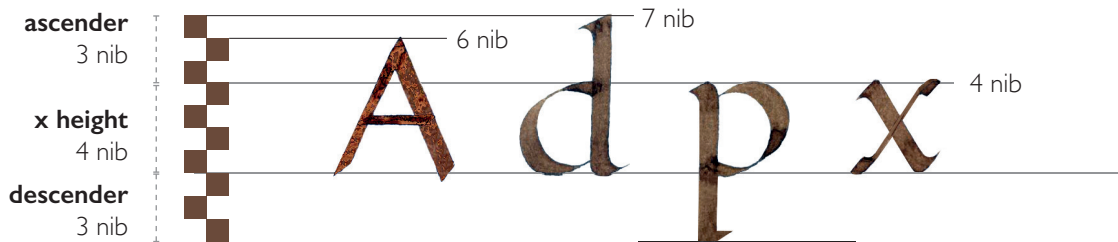
Trace the Capitals with 3 mm-pen!

A B C D

E F G H

I J K L

M N O P

Q R S T

U V W X

Y Z

A

B

C

D

E

F

G

H

J

K

L

M
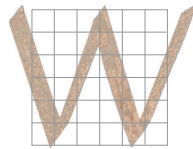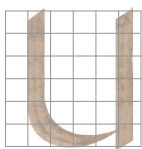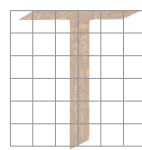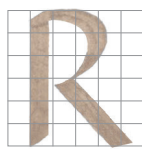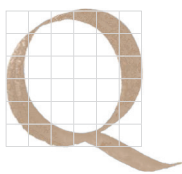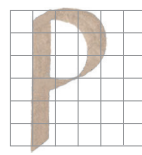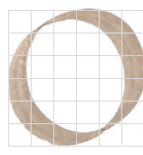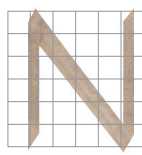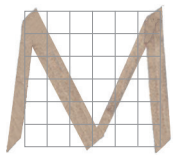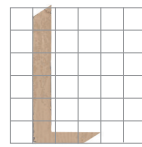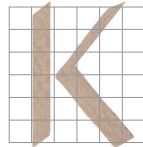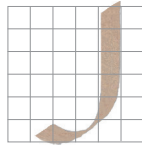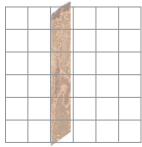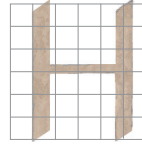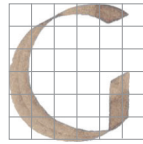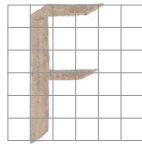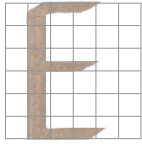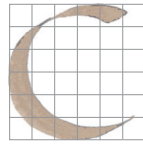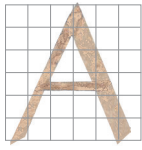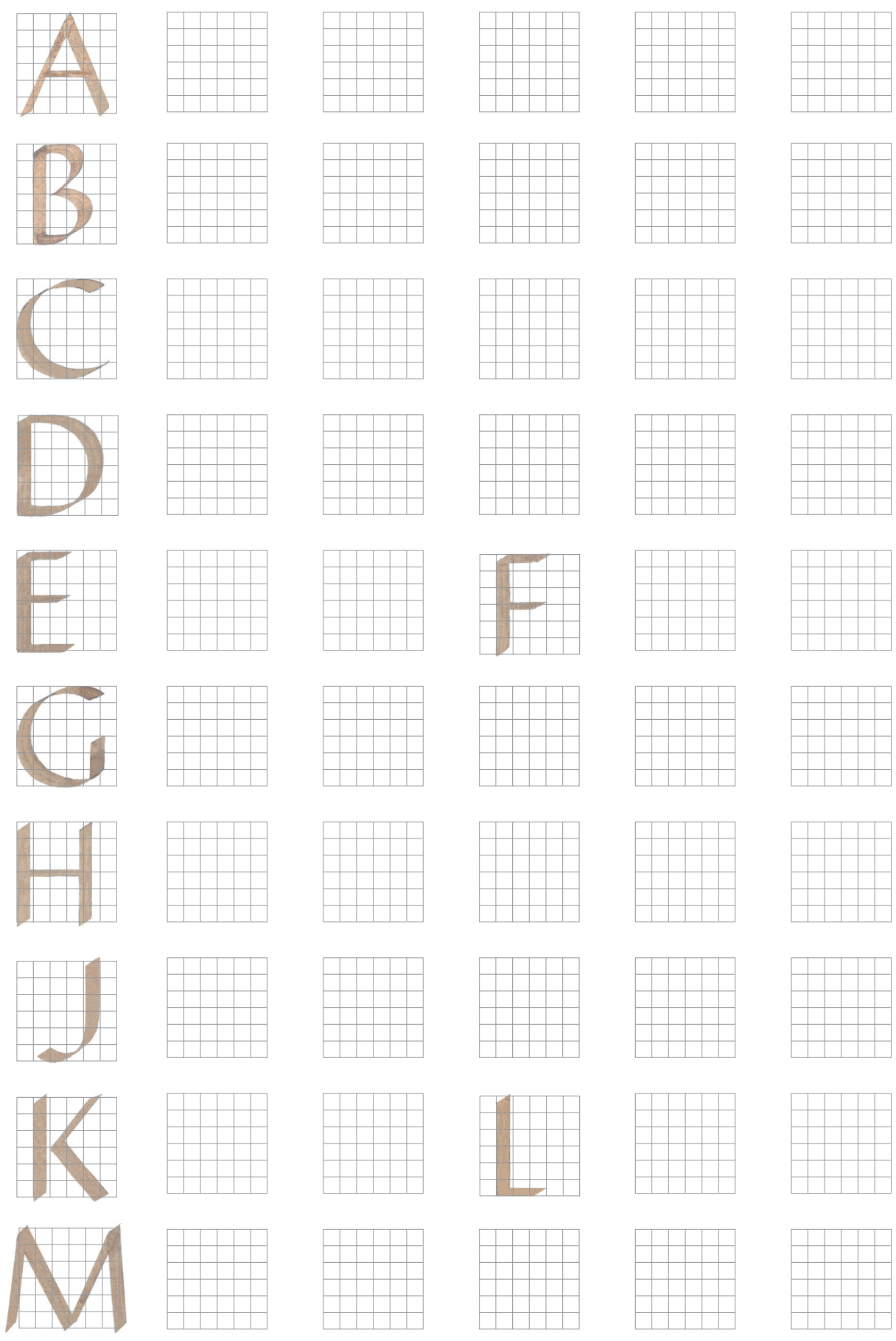
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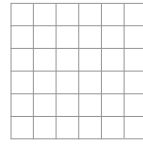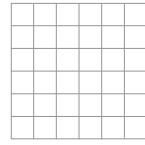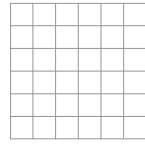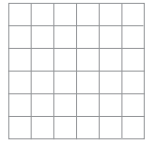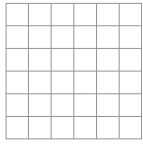
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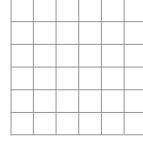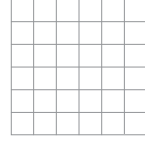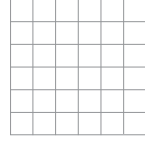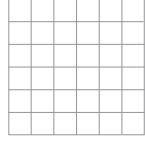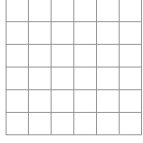
Q
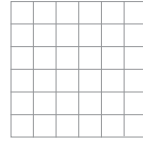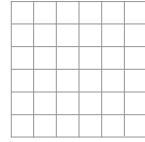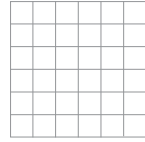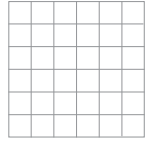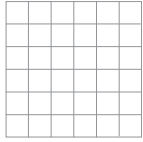
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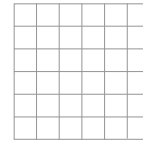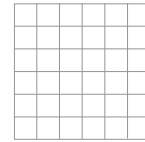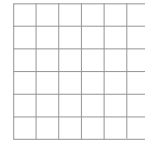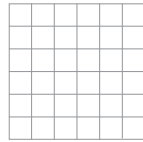
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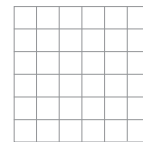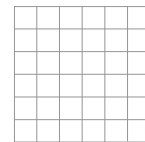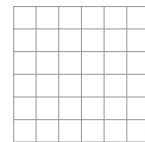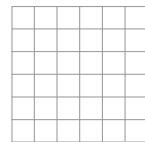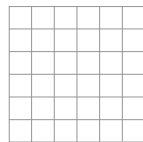
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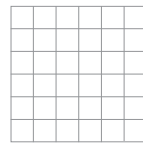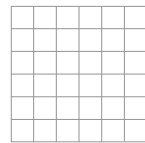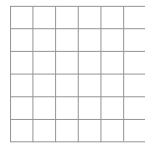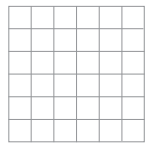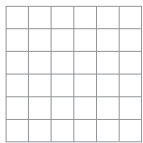
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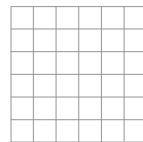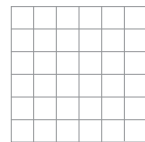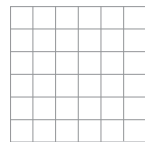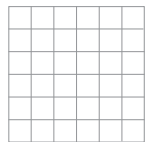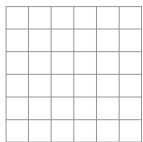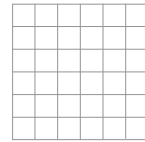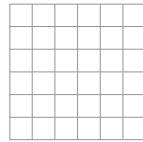
V W
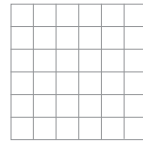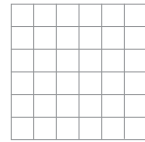
X
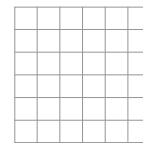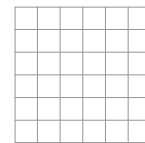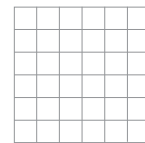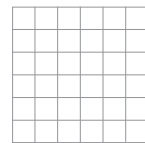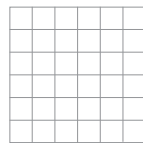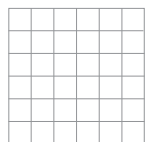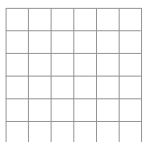
Y Z
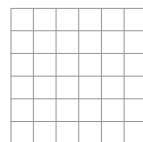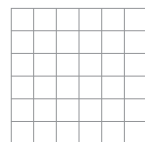
Optical Illusions

*t*The letters with upper and lower parts can have optical issues. The eye sees the upper part bigger than the lower part. To avoid this problem we can make the upper part slightly smaller than the lower one.

In the following example you can see on the left side, the letters or shapes centered geometrically which look unbalanced.
On the right side, you can see the optical balanced versions.

Which one looks better?

B B

8 8
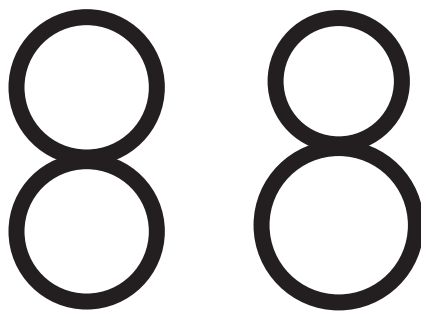
Spacing Capitals

THE CAPITALS have more complex forms than lowercase. Because of that, even letter spacing is more difficult. Beginners need extra time to train the eye for even spacing.

We have already mentioned in lowercase the basic spacing tip: Verticals are spaced far apart, curves closer. The main objective is to achieve even areas of white spaces (negative spaces) between letters.
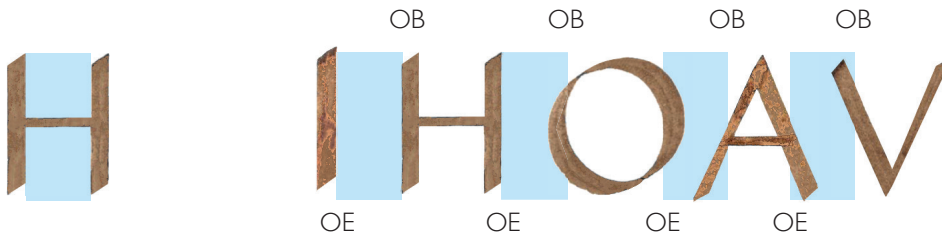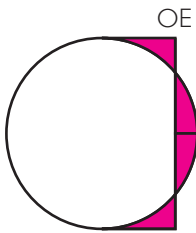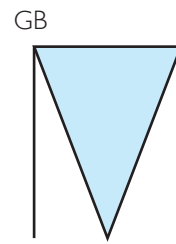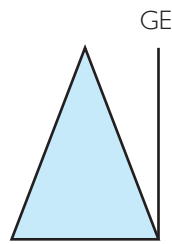

We take the innerspace of the letter **H** as a standard spacing measurement

As shown above, the Capital letters can be easily and evenly spaced with the help of Optical Beginning **(OB)** and Optical Ending **(OE)** lines.
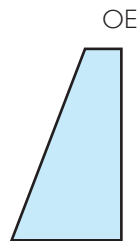
GE
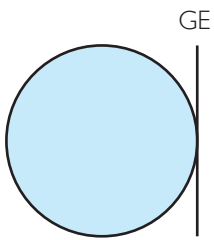
You can see in this image the **geometrical ending (GE)** line of a round letter such as O and D

GE   **GB**

OE

Here you can see the **optical ending (OE)** line. The colored parts have equal areas.

OE   **OB**

OE

OE   **OB**
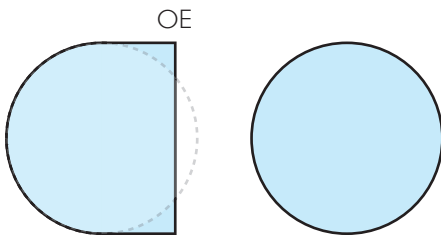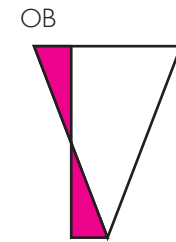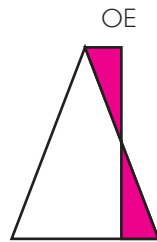
The blue shape and the blue circle have equal areas. With the help of this Optical ending line, we can space the next letter easily.

All the shapes above show the same optical adjustment for the **A** and **V**. The new optically balanced blue shape has equal area with the triangle.

A B C D

E F G H

I J K L

M N O P

Q R S T

U V W X

On this page, we can see all of the
optical beginnings (OB) and
optical endings (OE) lines of the
Capitals. We can easily space the
letters with help of these lines.

Y Z

Even spacing with optical area method are
shown in the alphabet sentence below.

SPHINX OF
BLACK QUARTZ
JUDGE MY VOW

Now you can see the evenly spaced phrase
above without any auxiliary lines

SPHINX OF
BLACK QUARTZ
JUDGE MY VOW

Capitals with serifs

ABCDEFGH1
JKLMNOPQ
RSTUVWXYZ

Numerals

1234567890

To choose
or construct
beautiful
forms
requires
good taste.

THOSE WHO ARE NOT ACCUSTOMED TO SEEING BEAUTIFUL THINGS ARE

OFTEN
UNCERTAIN
WHETHER
THEY THINK
A THING
BEAUTIFUL
OR NOT.

6 DESIGN & LAYOUT

"A good layout is much more important than either perfect lettering or fancy decoration."
George Ross

Margins

Margin is the space between page edges and the text. Top and side margins can be equal, but it is better that the bottom margin is a bit wider than the others. E.g.: For a DIN A4 paper you can use top and side margins 25mm, bottom margin 35mm.
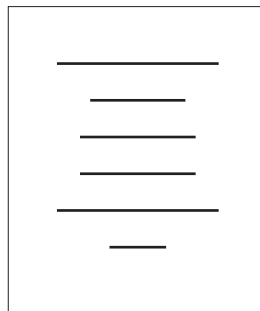
top margin

side margin
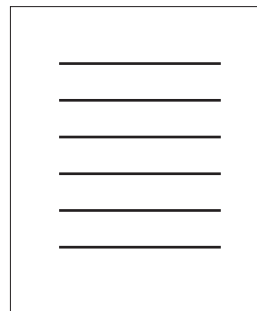
bottom margin
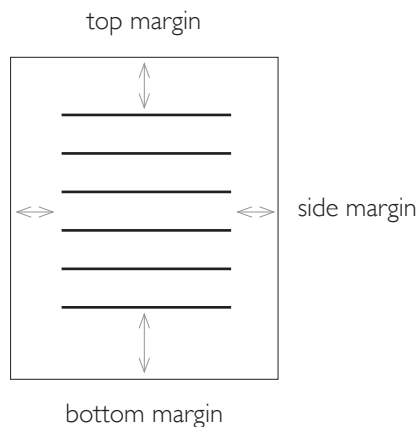
Standard layouts
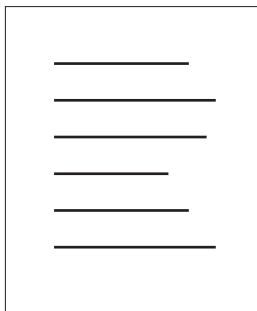
Aligned Left

Each line starts and is aligned on a vertical line on the left. It is the easiest layout and appropriate for practicing. (Susan Hufton)
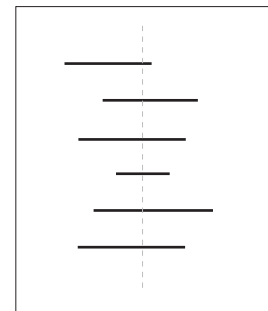
Centered

The lines are centered around a vertical center line. Need preparation and draft. And the start and end positioning of each line should be calculated. (Brown)

Justified

Justified and Assymetrical centered layouts are more advanced. They need a lot of planning time to lay out.

Assymetrically centered

Word and Line spacing

i technique for average word spacing
Place an **i** between words to achieve an average spacing

o technique for average line spacing
Place two **o**'s between the base line of the first line and the waist line of the next line

On the pangram below you can see the **i** and **o** techniques. *O line spacing technique* is more suitable for longer texts.
A pangram: 'every letter', a sentence using every letter of a given alphabet at least once. (themarysue.com)

quick brown
fox jumps
over the
lazy dog

Line spacing has to be larger than word spacing.
Shorter lines can have short line spacing
Longer lines need wider line spacing
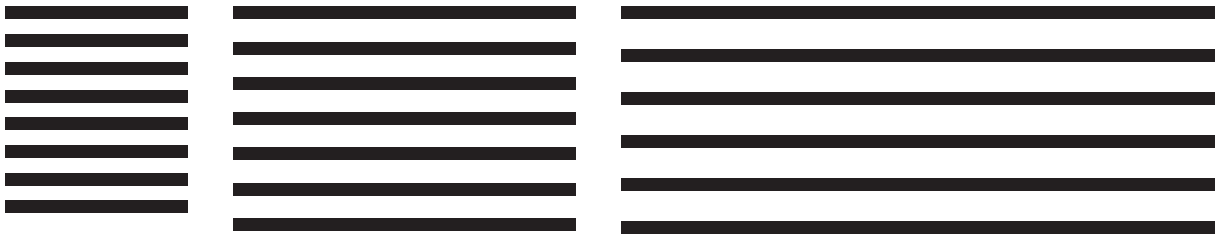
Rhythm in calligraphy

Rhythm in writing is fundamental; even perfect letterforms are lifeless without it. (Brown)

Rhythm can be defined as the repetitiveness of similar strokes

The word 'minimum' is a good exercise for the rhythm in calligraphy. You can see in the example the repeated strokes with the same color. The letter **u** is a reversed version of the **n**. The more you achieve the same repeated strokes and curves, the more beautiful your writing will be.