TypeGym: typography training platform

Sofia S. Almeida[1] [0000-0002-1736-3639], Ana Boavida[2] [0000-0003-1967-2221],
Tiago Martins[3] [0000-0003-2638-237X]

Abstract. Typography is of the utmost importance in Graphic Design. As the field evolved with the times, so is today's type practice almost exclusively done digitally. In an area where practice is crucial for students to comprehend the concepts, there is an opportunity to integrate digital tools with practical activities. We present TypeGym, an online platform for Typography training through interactive exercises in multiple important subjects of the area. These exercises are developed as a narrative of growing complexity, and allow for global or articulated training of specific topics of Typography, so that the user can develop their knowledge in the field according to their necessities.

Keywords: Typography, Web Design, Typography Education.

1 Introduction

Typography is a pillar of Graphic Design, consisting in the intentional arrangement of text elements, to properly convey information to the reader [1]. As such, it is a key area in the education of a graphic designer, since letters are the tool to visually transmit the spoken language [2,3]. As a centuries year-old field of studies, the available bibliography is ample and diverse, reaching from specialized to beginner level. Yet, as a visual tool, successfully manipulating Typography stems not only from studying and understanding the guidelines but mainly from developing the visual acuity necessary to sensibly manage type [4].

In this paper we present TypeGym [5], an online platform built for desktop with practical exercises on the basics of Typography, as a medium to practice while

1 University of Coimbra, DEI. uc2016234858@student.uc.pt
2 University of Coimbra, CISUC, DEI. aboavida@dei.uc.pt
3 University of Coimbra, CISUC, DEI. tiagofm@dei.uc.pt

reinforcing technical concepts, deepening the designer's pool of knowledge, built intentionally for inexperienced designers. Such as in class, students are given real practical exercises that relate to the subject being taught. Developing such a tool that isn't time-sensitive, allows students to independently evolve their skills and understand the meaning behind the constructed fundamentals, all at their own pace.

There are some online quality games and exercises on the topic, but yet no platform built intentionally to educate practical Typography through a consistent sequence and accompanied by descriptive theory concepts. With TypeGym, advantages can be taken from the opportunity provided by digital tools to gather the basic theory in interactive exercises, creating a new tool for independent learning, as a way to strengthen the formal education of Typography.

2 Related Work

Computational technology is a relevant presence in education and, as Typography has kept up with digital advancements, it is an area whose education has benefited from online tools [6, 7].

As previously mentioned, you can find examples of typography education through online practical exercises such as Kern Type, a game that explores the concept of kerning and its nuances [8]. Kern Type invites the player to manipulate spacing between a pair of letters, through direct interaction with the shapes. After the users submit their answer, the game returns what would be the correct kerning for the word in question as well as an overall scoring that depends on how close the submission was to the correct composition. The scoring system is clear enough to understand the proximity of the user's answer to the exact positioning and the feedback of the game showing the correct spacing right after direct interaction. Having a transparent score creates an engaging challenge that can be played over and over again, encouraging the training of the eye when it comes to reaching the balance between shape and negative space.

Another related example one can find online is Rag Time [9]. The topic in question is the treatment of ragged text, that the user is invited to manage in order to obtain cleaner edges. The user must race against the timer, navigating through the text using the keyboard arrows, creating new lines, or removing existent ones, with the "enter" and "delete" keys. The goal of this game is more ludic than pedagogic, since the objective is to see how well you perform against the clock, with your score signifying the overall performance.

The existing related work demonstrates the gamification of some Typography topics. However, one can not find a platform that brings together different Typography exercises, much less in an articulated way. Also, the presence of a timer, while appropriate for a game, does not create enough space for the necessary reflection in

a didactic exercise, since learning in a visual field may stem from trial and error. For these reasons, TypeGym aims for gathering exercises in multiple relevant topics developed with the same purpose and functionalities, combined into a cohesive series in one online platform, with the main purpose of complementing the formal education of Typography, in an area where practice is crucial.

3 Practical Work

Since reinforcing the user's Typography knowledge through practice is the main objective of TypeGym, all decisions concerning the platform design and its exercises try to promote the best possible experience as well as allowing future improvements and updates. For this reason, the navigation inside the platform is flexible while the layout, presentation and dynamism of the pages remain consistent. This was accomplished by gathering influences from the history of Typography itself, which also comes as an opportunity to present them to the user.

The typeface selected to be used across the platform is IBM Plex [10]. This font family offers versatility since it presents a large selection of weights in serif, sans-serif and monospaced variations. This allows the employment of different weight variations for different purposes while keeping the visual consistency throughout the entire online platform. Also, the selected colors are inspired in the earlier type printing practices, consisting of black and red, where the latter is only used to highlight specific details [11]. This graphic minimalism aims to reinforce the user's visual focus on the content and process of the exercises.

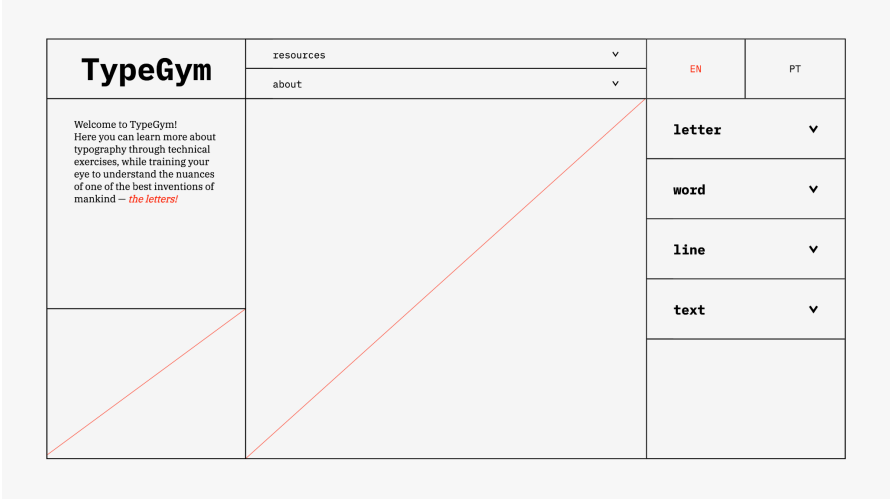

Fig.1 Landing page of the platform TypeGym.

The grid that is visible across the platform screens was accomplished by simplifying the shapes from a typographer's case [12]. Besides being an ode to traditional typesetting, this scheme creates a consistent hierarchy of information, as it is possible to examine in Figure 1. The boxes remain consistent throughout the landing page and the exercises, maintaining the idea of vertical triptych segmentation, and creating a clear and logical working space.

Across the exercises, the areas bounded by the boxes define the narrative of the exercise, as illustrated in Figure 2. Firstly, on the left side, there is an area for the briefing, where the objective is presented to the user. Secondly, on the centre of the page, there is the main area where the interaction with the user takes place. Lastly, on the right side, there is an area that shows feedback according to the performance of the user, including a final overall score and a theoretical explanation concerning the topic of the exercise.

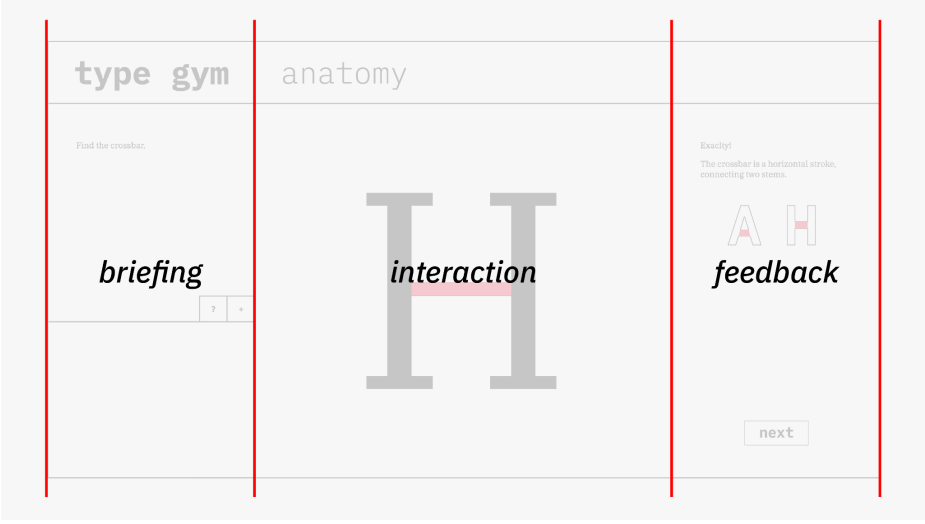

Fig.2 Main areas of the platform TypeGym.

3.1. The Exercises

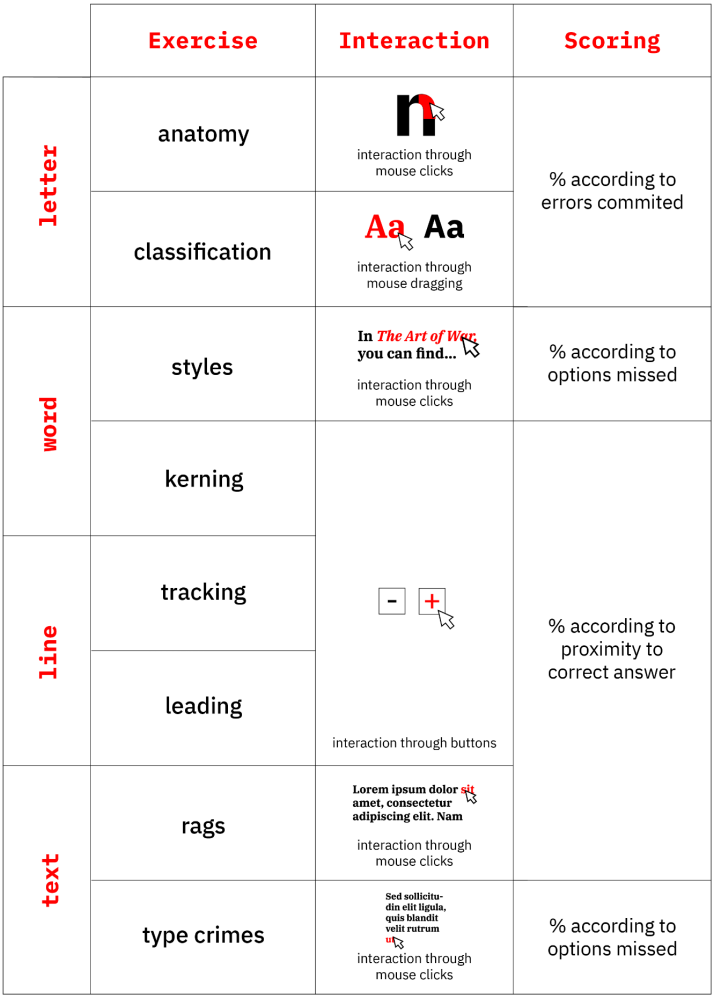

Fig.3 List of exercises available in the TypeGym platform, including their interaction method and scoring calculation.

Deciding on which topics of Typography theory would be developed into exercises was a challenge, since the main objective was to create a logical sequence of increasing complexity. A cohesive group of exercises to develop was reached by focusing on the introduction of multiple relevant areas that, when combined, create a clearer picture of what correct manipulation of text looks like, keeping in mind which topics would be possible to gamify. Each of these exercises was developed

specifically for the TypeGym platform, from the theoretical research to the final dynamic exercise, so that they work together as a set and the language remains consistent across the platform. For this reason, the interaction mechanisms across exercises were designed to be as consistent as possible, in order to make the topics the main protagonist.

In order to organize the exercises and highlight the logical sequence, these were organized into the themes they fit into: letter, word, line and text, as shown in Figure 4. There are four themes, each one including two exercises, totalling eight exercises. Each exercise has different levels that address different matters of the topic at hand. As mentioned previously, the platform was designed so it would be possible to add more exercises later on.

The exercises were developed utilizing the p5.js library of Javascript [13].

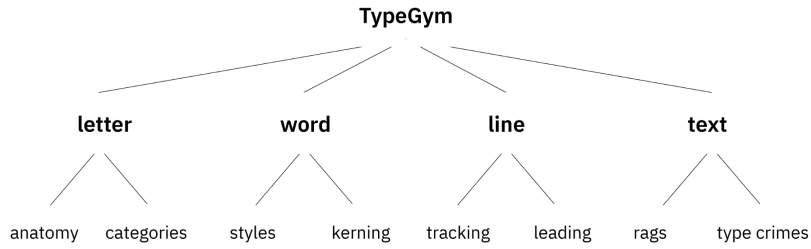

Fig.4 Categorization of the exercises available in the TypeGym platform.

Letter. This area focuses on exercises at the level of the letter.

Anatomy. This exercise explores the vocabulary assigned to the shapes that build the letters. The terms used have been born over the centuries, with the evolution of type [14]. In order to understand the nuances in the treatment of type, it is important to be able to identify the constituents of the characters and what their names are.

In this exercise, the brief consists in identifying the term given in the presented letter in the interactive space, in each level, as exemplified in Figure 5. You can only proceed to the next level when you have correctly clicked the desired segment of the letterform. Through trial and error, the user has time to interiorize the meaning of the word. At the end of the exercise, your overall score is a reflection of how many times the user has not selected the correct option.

Fig.5 Example of the interaction in the *anatomy* exercise.

Classification. This exercise focuses on the classification of typefaces. There are different ways to classify typefaces and their evolution. The selected classification method was the one proposed by Ellen Lupton in *Thinking with Type*, since this book was written specifically for Typography students and beginners [15].

The goal for the user is to analyze the shapes of the letterforms provided and chronologically rearrange them, by directly dragging the letters, according to their classification, from the oldest to the most recent one, as described in Figure 6. The user can only move on to the next level when they are all correctly located. As the exercise progresses, more letterforms are introduced to increase complexity. Theoretical feedback is given after each level to better contextualize font evolution and call attention to how shapes may vary. At the end of the exercise, an overall score is presented according to how many times the user has correctly arranged the letterforms.

Fig.6 Example of the interaction in the *categories* exercise.

Word. After analysing the letter itself, this section focuses on exercises where letters work together to form another unity at the level of the word.

Styles. This exercise focuses on font weights. In today's digital era, everyone knows how to italicize or change the weight of a word, referring to the thickness of the stroke [16], to bold, but inexperienced typographers benefit from understanding the formal rules behind these decisions since they may influence readability [17].

In this exercise, users are given excerpts of texts and must navigate them, directly clicking on words where the weight should be changed, as shown in Figure

7, to achieve a balanced hierarchy. At the end of the exercise, there is a score based on how many times the user has missed the words they were supposed to readjust.

Fig.7 Example of the interaction in the *weights* exercise.

Kerning. This exercise addresses the subject of kerning. This term refers to the adjustment of space between a given pair of letters [16]. Understanding how to reach a balance between shape and negative space is essential for any designer, to achieve the best possible legibility. This equilibrium is only possible after a great deal of eye training, combined with the fact that the manipulation of kerning may depend on the context of usage.

The interaction in this exercise is done by selecting a pair of the inside letters of the word provided and adjusting the space between them using one of two buttons. One of these buttons adds space while the other subtracts space. This interaction is exemplified in Figure 8. When the user is ready, the adjusted kerning can be submitted, followed by feedback of where the position of the letters should be. This is accompanied by a score according to how close the user was to the correct placement. In the end screen, the final score indicates the overall performance.

Fig.8 Example of the interaction in the *kerning* exercise.

Line. After the exercises that focused on words, this area gathers exercises at the level of the line of text.

Tracking. This exercise addresses the topic of tracking. Tracking, or letterspacing, refers to the overall spacing between letters, which may need to be added in some typefaces [18]. Managing tracking will affect the overall legibility of a word, line or

block of text, and it may also vary according to context. For this reason, it's important for an inexperienced designer to understand when to adjust it and how this decision will affect the final design.

In each level of this exercise, the user is presented with words and texts that vary in size and purpose and must use the two buttons provided to adjust the tracking until they find the desired effect, as shown in Figure 9. After submission, the correct answer will appear on screen, as well as a score that reflects how close the user was to the correct answer. At the end of the exercise, an overall score reflects the average performance through the levels.

Fig.9 Example of the interaction in the *tracking* exercise.

Leading. This exercise concerns the management of leading. This term refers to the distance between the baselines of two consecutive text lines [14]. Leading is another topic that any designer must deal with when treating text. Like many other aspects of Typography, it can only be perfected through training and understanding how it can affect legibility.

In this exercise, users must adjust the leading of the texts provided in each level by using two buttons that add or subtract space, as shown in Figure 10. The scoring after each level calculates how close the user was to the correct answer.

Fig.10 Fig. 10. Example of the interaction in the *leading* exercise.

Text. In the final area, the focus of the exercises is at the text level. Learning how to manipulate blocks of text is essential to achieve the best possible legibility.

Rags. This first exercise in this area is about managing rags that are created by non-justified text. Even though designers should strive to create an organic block of text and unmanaged rags may cause distractive gaps that affect the clearness of reading [19,15].

In this exercise, users must interact directly with the text, selecting the last word of a line to make it leap onto the next line, or select the first word of a line to make it recede into the previous one, in order to create an organic line on the soft border of the text. This interaction is exemplified in Figure 11. After the users feel like their answer is ready, they can submit it and there is feedback that presents the correct solution. A final overall score at the ending screen reflects how many times the user has made an error.

Fig.11 Example of the interaction in the *rags* exercise.

Type Crimes. The last exercise in the narrative is about recurrent errors that may appear when treating text and that may not be obvious for inexperienced designers. They are what is commonly referred to as orphans, widows and rivers. Orphan is the term referring to an isolated word in a line at the top of a text block. Widows is the term given to a line containing only one word [3]. Lastly, the term river refers to the gaps that may appear between words in justified text, creating distractive vertical spaces across lines [15]. The naming of this exercise comes from an expression Ellen Lupton uses when calling out for type errors [15].

Through direct interaction with the excerpts of text provided, users must analyse the text area and select where they can find an error, such as in Figure 12. The scoring at the end screen is calculated according to how many errors the user has missed.

Fig.12 Example of the interaction in the *type crimes* exercise.

3.2. Navigation through exercises

The sequence of exercises has been designed to be a cohesive set, from the unit of the letter and its constituents to the more complex level of the text and what managing the elements all together entails. When one exercise finishes, the user is presented with an option to repeat the exercise or continue to the next one. This way, the user may follow the growing complexity in order to get a global overview of what the basics of Typography are.

Nevertheless, such as in a gymnasium, somedays you may need to prioritize which body areas to exercise. For this reason, on the landing page, the user has the possibility of choosing which topic to exercise individually. When entering an exercise page, the user can also revisit the exercises menu and switch to a different one. This option, between complete or articulated training, is beneficial for the user and reflects the flexibility provided by digital learning tools such as TypeGym.

4 Conclusion

Understanding the dynamics of Typography and developing an educated and trained practice is essential for design students since the written language is one essential pillar in graphical communication. With TypeGym, we present a valuable tool for typographic training. Its main contributions include the benefits of a global and sequential training in the basics of Typography, as well as the possibility for navigation to any isolated topic the user may need to further exercise; the platform being made available to anyone, since it is online; the flexibility that a digital tool may create in introducing theoretical subjects through practical interaction and yet another location for independent training and knowledge sharing online.

Students and aspiring designers can benefit from the presented platform, deepening their knowledge, in order to make conscious decisions. Independent training supported by an online platform promotes confidence in an area as complex as Typography. Since every exercise has been planned specifically for the platform, it is possible to adapt the language for TypeGym's target audience and create a logical sequence through the exercises series. Adapting theory to practical exercises is challenging. Nevertheless, the final result ensures consistent language and mechanisms of interaction across the exercises, creating a comfortable environment for learning.

This platform is a new tool that aspires to benefit future generations of designers being introduced to such an essential subject as Typography, embracing the opportunities of the digital era.

A future step in the development of this platform consists in performing usability tests with TypeGym's target audience to find improving opportunities for the platform and maximize the impact of every design decision. It is also a possibility

to extend the platform by adding new exercises. The present version is designed to be viewed in desktop format, mirroring the digital tools most used by graphic design students, and when opened in mobile a message is displayed asking the user to open the platform in a desktop browser. Nevertheless, the platform would also benefit from being adapted for mobile viewing, expanding the contexts in which it could be used.

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