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The significance of typography in data visualisation

Halime Turkkan*, Baskent University, Faculty of Fine arts Design and Architecture, 06810 Ankara, Turkey

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Abstract

With the development of technology and the dominance of the digital world, typography has become a critical issue. Information design systems are considered as one of the significant areas of graphic design. Big data provides important information on data visualisation. While presenting this information, the value that the script adds to the design will be examined in this study. The choice of typefaces, leading and kerning in typography, type hierarchy, harmony, balance, unity, the contrast between the visual elements and typography are the critical components of data visualisation. 'Communication designers often err on the side of providing features that entertain and visually please audience's ability to receive or understand the message, in the hope that messages will be understood because they are associated with appealing features. Although designers often concentrate on visuals and aesthetics, at other times they hope to attract viewers by focusing clearly on valuable content. But too often both approaches impair the audience's ability to receive or understand the message'. In support of what Jacobson mentioned above in his book titled Information Design, this study aims to emphasise the undeniable importance of typography in data visualisation designed for informative purposes.

Keywords: Typography, design, data visualisation.

* ADDRESS FOR CORRESPONDENCE: **Halime Türkkana,** Baskent University, Faculty of Fine arts Design and Architecture, 06810 Ankara, Turkey.
E-mail address: fisenkk@baskent.edu.tr

1. Introduction

Typography is one of the major elements of visual communication. It should be a considerable presentation tool in data visualisation. However, many visual elements such as shapes, colours, symbols and pictograms are represented in the design format without heeding type design. This article aims to show the need for using correct typography and its effects on visualising data powerful and attractive.

Heskett states that design is not only about initial decisions or concepts by designers but also about how these are implemented and by what means we can evaluate their effect or benefit (Heskett, 2002, p. 6). Data visualisation is a way of representing the information in terms of typography, colours, symbols, graphics and so on hierarchically on design space. Bringhurst describes typography in his book *The Elements of Typographic Design* as the craft of subscribing human language with a durable visual form and thus with an independent existence. He declares that its heartwood is calligraphy—the dance, on a tiny stage, of the living, speaking hand—and its roots reach into living soil, though its branches may be hung each year with new machines. 'So long as the root lives, typography remains a source of true delight, true knowledge, true surprise' (Bringhurst, 2001, p. 11).

The feeling of revolt in the new movements of art, architecture and literature that were sweeping across Europe in the mid-1920s was spreading to the world of typography (Lewis, 2007, p. 50). As Lewis emphasises, the mouthpiece of this new movement was bringing a vital new emphasis to words by design, layout, space organisation by the choice of typeface; thus, this new typography was called functional typography which is based on no set of formal conventions or cliches. Like the change in typography in that era, typography usage in data visualisation is a very complicated issue (Lewis, 2007, p. 51).

According to Tufte, many of the visualisation examples suggest that clarity and excellence in thinking are very much like clarity and excellence in the display of data. He thinks that the principles of design replicate principles of thought, the act of arranging information becomes an act of insight (Tufte, 1997, p. 9).

Figure 1. Visual explanation example (Tufte, 1997, p. 100)

An image seen in Tufte's *Visual Explanations* book, which is a mix of a photograph, drawings, numbers and text, a conventional typographic caption would not be done with such a chaotically two-dimensional and dense clustering of faces. Two-third of such codes can be avoided, utilising thoughtful design, direct labels and close integration of explanatory text with images in practice (Tufte, 1997, p. 100), (Figure 1). Thus, with the abovementioned example, it is proved how much a complex image can be perceived with a simple text/typography.

The major function of typography in every design field is communication most simply, as it is in data visualisation.

> 'Complex problems are made up of many interrelated elements. They demand innovative approaches-flexible processes that reveal relationships among parts-that require us to look at problems from new and varied points of view merely to understand them, much less to solve them. Problems are situated in specific contexts and their parts interact continuously at many levels and across shifting boundaries'. (Hansen, 1999, p. 193)

2. Methodology

In this article, the significance of typography on data visualisation will be examined through randomly selected 10 infographic design samples published in the last 6 months on Google. This research aims to analyse the effects of typographic elements on visualising data in terms of visual communication by discussing the value that typography gives to design space.

3. Data visualisation and typography

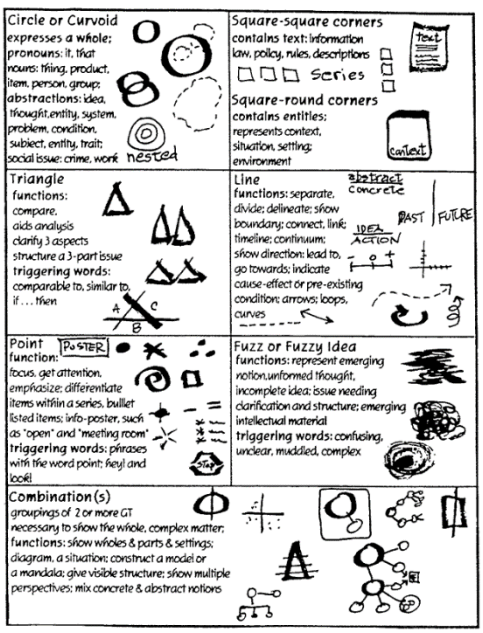

Figure 2. The six graphic tools (Hansen, 1999, p. 210)

The purpose of these graphic tools is mainly to combine to express the concept or idea (Hansen, p. 211). While using these graphic tools for expressing information, typography should be the element that supports readability and legibility.

As it is mentioned using effective typography in data visualisation is very important for communication,

> 'Many users restrict their choice of typefaces for texts and especially for illustrations to the requirements of their software or operating system. This is not only founded on pragmatism, but also has financial reasons: if you buy a high-quality typeface such as Frutiger, in regular, italics and bold variants in three different widths, respectively, you will have to expend several hundred Euros—and still be unclear about the legal status governing its use. Fortunately, there are a fair number of free

> high-quality alternatives whose use makes sense even for illustrations'. (Rahlf, 2017, p. 14)

Infographics is a form of presentation in which information is expressed visually and transmitted through graphics and text. It can be accepted as a way to better understand the environment, everything we interact with, and make life easier. Users often encounter infographics that are used to convert raw information obtained from complex and dense data into easy and understandable information in our daily lives. Infographics became even more important with the ever-increasing volume of information that made up the digital world and the rapid rise of social media.

In the following 10 examples, images and text are used together. However, in the first five examples (Figures 3–7), the text is not in the foreground. In the next five infographic design examples (Figures 8–12), typography is considered as a design element besides visual elements.

Figure 3. Infographic design for the oldest trees of the world, https://twitter.com/infografik1/status/950731607597559808

The first example includes an infographic design that includes information on the world's oldest trees. In this example, it is expected that such a pleasant topic will be dealt with a much more striking design, while the relationship between typography and image is weak. Both the icons and the names of the trees do not appear to be effective, and their readability and perception are poor.

Figure 4. Infographic design for social media art. https://www.slideshare.net/SibelHo/sosyal-medya-sanat-nfografik

The second example is an infographic poster design that describes the steps to increase the number of followers on social media. While this poster should be fun and remarkable in terms of increasing the number of followers on social media, which is the most popular social media tool of today, it is

disappointing especially for a designer to encounter a weak and very weak design with a sans serif font without using any images. It is argued that designing such a pleasant subject with colourful and suitable fonts will yield a much more productive design.

Figure 5. Infographic design for 'What will thermal power plant cost in Eskisehir?' http://www.sivilsayfalar.org/2018/08/10/eskisehirde-termik-santrale-harcanacak-parayla-11-hastane-257-okul-yapilabilir/infografik-5/

In this infographic abovementioned example, the conditions that will be created by the thermal power plant in Eskisehir are explained. However, composition, hierarchy, order, contrast, the use of colour and finally the relationship between image and text is considered as a failed design. While the topic of the thermal power plant will be a successful design with the use of correct typography, very poor readability is obtained.

Figure 6. Work power statics in Turkey. https://www.aa.com.tr/tr/info/infografik/15847

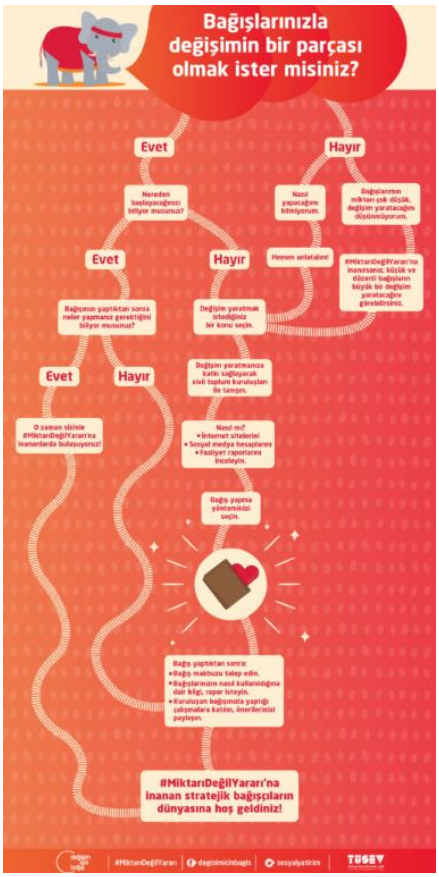

Figure 7. Infographic poster design for 'Donation for Change'. https://degisimicinbagis.org/bagislarinizla-degisimin-bir-parcasi-olmak-ister-misiniz-infografik/

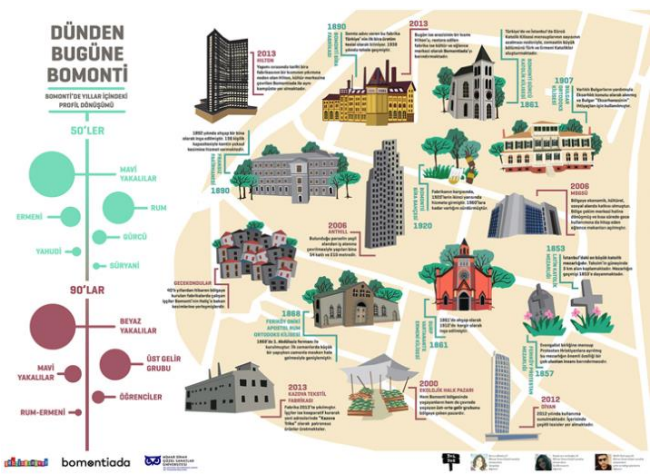

Figure 8. Infographic design for the history of bomonti. https://www.arkitera.com/haber/bomonti-kesif-ve-infografik-atolyesi-urunleri/

Figure 9. Infographic design for City of Izmir. https://dogucanguler.com/ portfolio/izmir-kent-infografik-tasarimi/

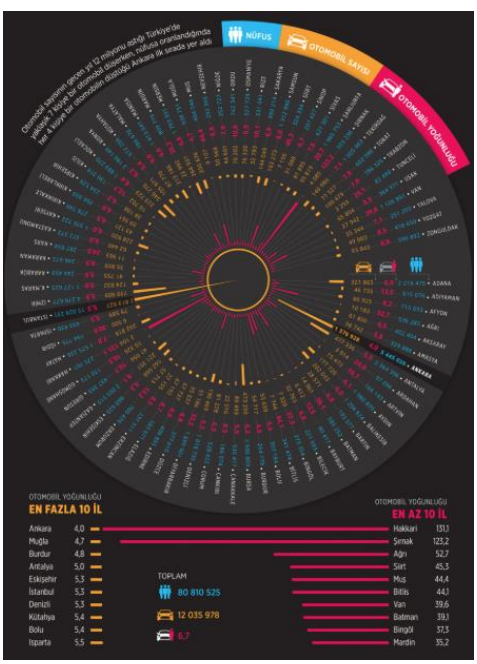

Figure 10. Infographic design for 'One of seven people Owns a car in Turkey'. https://www.eskisehirekspres.net/infografik/turkiye-de- 7-kisiye-bir-otomobil-dusuyor-infografik-h1697.html

Figure 11. Infographic poster design for 'violence against woman in Turkey'. http://infografik.com.tr/yasam/turkiyede-kadina-yonelik-siddet/

Figure 12. Infographics for a building project in Turkey. http://infografik.com.tr/ portfolyo/bir-yesil-bina-projesi-and/

Samples that use typographic rules consciously are more powerful and readable than others with the perspective of a graphic designer. Based on design principles, examples of typographic editing are handled with precision and are perceptible. It is thought that one of the most important elements of visual communication is to convey the message effectively to the audience in a short time with more powerful typography in the light of these examples.

> 'Typographers structure type design into a type hierarchy ranging from the scope of glyph design to words, sentences, paragraphs and documents, to systems applied across many documents—for example, a design system used across a series of books or guidelines for corporate branding and visual identity. This hierarchy is somewhat similar to the differentiation between representations of marks as point, line and area as discussed in data visualisation'. (Brath & Banissi, 2016, p. 73)

Warden says that one of the best ways to communicate the meaning of data is by extracting the important parts and presenting the data graphically; which helpful both for internal use, as an exploration technique to spot patterns that are not obvious from the raw values and as a way to succinctly present end users with understandable results (Warden, 2011, p. 33).

4. Conclusion

Nowadays, the concept of big data, which makes the data replicating and accumulating useful at any time, becomes a phenomenon that enables data pollution that becomes visual pollution. Faced with data visualisation examples in many areas and many subjects, it is thought that the phenomenon that should stand out as a graphic designer is to create a memorable and effective presentation. Although the concept of big data is a data set that enables the processing and storage of information, we encounter many examples of visual pollution in data visualisation. This article aimed to investigate the effect of typographic elements on data visualisation with 10 samples encountered in the last 6 months on the web. The effect and contribution of typography were investigated by examining 5 data visuals designed with only images or graphs with 5 samples containing typography as a visual value. Considering the 10 examples discussed, it was found that 5 designs with typographic concern were more favourable and visually more striking and preferable than the other 5 designs in terms of design disciplines. As in all areas of graphic design, it is argued that the power of typography is an indisputable concept in data visualisation, which is seen as a sub-branch of information design. No matter how powerful or interesting the visual elements are, effective typography is argued to reinforce the power of visual elements and is an indispensable part of information design.

References

Anadolu Ajansi. (2019, October 15). *Infographics of work power statics in Turkey*. Retrieved from https://www.aa.com.tr/tr/info/infografik/15847

Arkitera. (2016, November 28). *Bomonti Kesif ve Infografik Atolyesi Urunleri*. Retrieved November 2019, from https://www.arkitera.com/haber/bomonti-kesif-ve-infografik-atolyesi-urunleri/

Brath, R. & Banissi, E. (2016). Using typography to expand the design space of data visualization. *She Ji: The Journal of Design, Economics and Innovation, 2*(1), 59–87.

Bringhurst, R. (2001). *The elements of typographic style*. Boston, MA: H&M Publishers.

Eskisehir Ekspres. (2019, February 9) Retrieved October 2019, from https://www.eskisehirekspres.net/infografik/turkiye-de-7-kisiye-bir-otomobil-dusuyor-infografik-h1697.html

Guler, D. (2018, October 8). Izmr Kent Infografik Tasarimi. Retrieved from (2019, September) https://dogucanguler.com/portfolio/izmir-kent-infografik-tasarimi/

Hansen, Y. M. (1999). Visualization for thinking, planning, and problem solving. In R. Jacobson (Ed.), *Information design* (pp. 193–220). London, UK: The MIT Press.

Heskett, J. (2002). *Design: a very short introduction*. Oxford, UK: Oxford University Press.

Hos, S. (2019). *Slideshare social media art*. Retrieved from https://www.slideshare.net/SibelHo/sosyal-medya-sanat-nfografik

Infografik Gorsel Bilgi Gunlugu. (2013, November 25). Retrieved September 2019, from http://infografik.com.tr/?s=kadina+siddet

Infografik Gorsel Bilgi Gunlugu. (2014, May 5). *Bir Yesil Bina Projesi: AND*. Retrieved September 10, 2019, from http://infografik.com.tr/portfolyo/bir-yesil-bina-projesi-and/ Infografik1, Yeryuzunun en uzun yasayan agaclari [tweet] Retrieved from https://twitter.com/infografik1/status/950731607597559808

Jacobson, R. (1999). *Information design*. London, UK: The MIT Press.

Lewis, J. (2007). *Typography: design and practice*. Huddersfield, UK: Jeremy Mills Publishing.

Rahlf, T. (2017). *Data visualisation with R100 examples*. Cham, Switzerland: Springer International Publishing AG.

Sivil Sayfalar. (2019, October 5). Retrieved from http://www.sivilsayfalar.org/2018/08/10/eskisehirde-termik-santrale-harcanacak-parayla-11-hastane-257-okul-yapilabilir/infografik-5/

Tufte, E. R. (1997). *Visual explanations images and quantities, evidence and narrative*. Cheshire, CT: Graphic Press.

TURSEV Third Sector Foundation of Turkey. (2017, July 3). *Bagislarinizla Degisimin Bir Parcasi Olmak Ister Misiniz?* Retrieved from https://degisimicinbagis.org/bagislarinizla-degisimin-bir-parcasi-olmak-ister-misiniz-infografik/

Warden, P. (2011). *Big data glossary*. Newton, MA: O'Reilly Media, Inc.