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3D Typography Design in the Digital Environment

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Abstract

Writing is a visual expression of language-based communication and the most basic indicator and result of human social development and his evolution is in tune with language, thought, art and cultural exchange and/or development. Today, in the concept of writing – typography is far beyond just describing a technique. The effects of developments on technology are reflected in typographic studies and new and effective expression forms are created with new software environments, new media and new experimental works. Typographic studies designed in the digital environment by use of possibilities offered by technology presents new expression possibilities to the audience. Examining how digital typography, which is becoming widespread, has been designed and produced is a necessity to meet the communication expectations of the day and in the future with visual designs. In this article, the history of 3D writing, typography studies, usage areas and 3D digital typography designing stages are examined.

Keywords: 3D, typography, design, digital environment, graphic design, motion, video.

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1. Introduction

3D shapes, signs and pictograms which were dug into tablets and stones in prehistory, are regarded as primitive forms of writing. Primitive forms evolved into richer and more complex forms, and abstract signs became more understandable marks. Engravings and scraping marks are called primitive/proto-writing.

3D writing in the cuneiform script is found in the form of scratchings by stone and mud tablets. Typography improved and coverage increased from mud tablets to touch tablets. Until the discovery of paper, various writing surfaces were used. Some of these surfaces are mud tablets in Mesopotamia and wood in the Far East, Asia and China (Sarıkavak, 2004). These surfaces also determine that the text is in 3D. Another important example of 3D writing and the discovery of this writing is the writing of the cuneiform script by Sumerians on tablets (Figure 1).



Figure 1. Sumerian cuneiform (left) and Phoenician alphabet tablet excavations (right)

The Romans scratched writings on marble and stone of monuments and architectural structures, especially to mention their victories. Due to this requirement, Roman writers and marble cutting masters have designed and used the Roman Capital script (Figure 2).

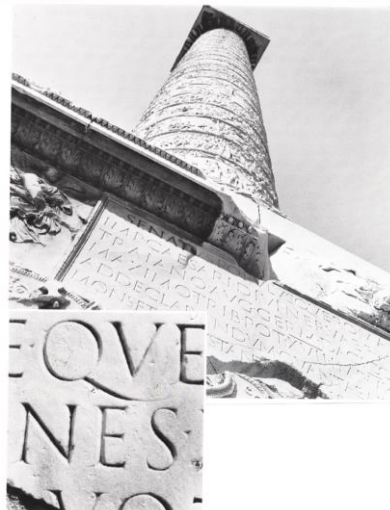


Figure 2. Trojan column including Roman alphabet

2. Methods

This research is a qualitative study aimed to evaluate 3D typography designs in terms of visual design and content analysis in the digital environment.

Qualitative research is a method that adopts an interpreting approach to investigate the problem of research based on a holistic view of disciplines. The facts and events that have been investigated are considered in their own context and interpreted in terms of what they mean to them (Altunisik, Coskun, Bayraktaroglu, & Yildirim, 2010, p. 302).

3. 3D text

With the invent of the printing press, writing entered a new era. Thanks to the movable type and the printing technology, typography has taken its place in dictionaries. Typography has been used to express functional and aesthetic arrangements made with this technology.

The printing technology developed with the Industrial Revolution prepared the appropriate environment for the development of typography. The concept of typography has gone beyond just describing a technique. Typography has become a visual imagery outside of being read and taught only by visualisation of information. The characters used were used as a way of expressing thoughts and ideas.

To give an example of 3D typography, in 1965, the cafeteria of the CBS television channel can be viewed. In the Gastrotypographicalassemblage wall of CBS constructed by Lou Dorfsman and Herb Lubalin, 3D typography in the interior was effectively used. Lou Dorfsman used 250 different typefaces when he was working (Figure 3).



Figure 3. Lou Dorfsman ve Herb Lubalin tarafından CBS restorani için tasarlanan uc boyutlu tipografi kullanımı (Poulin, 2012, s. 153, 154).

Dorfsman says that this work was inspired by Piet Mondrian's work and alphabetisation (Figure 4).

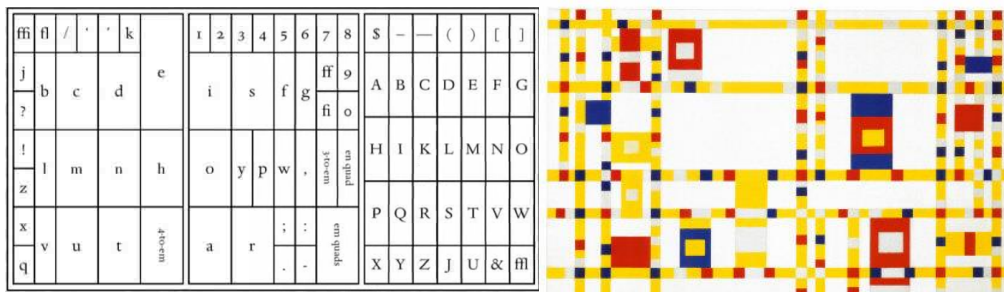


Figure 4. On the left is the font case, on the right is a section from the design of Piet Mondrian (<http://www.thecenterfordesignstudy.com/about.htm>)

Writings are designed with different size, depth and typeface. In addition to this, some food objects were placed.

Some of the numbers on the work are noteworthy; there are 1,450 letters on the wall. About 25% of these letters were damaged and had to be repaired. Duvarı 2.5 m yüksekliğinde ve 12 m genişliğinde (Figure 5).



Figure 5. Sketch and 3D letters designed for wall (<http://www.thecenterfordesignstudy.com/about.htm>)

In the 1960s, the integration of large-scale environmental graphics and typography into architecture took its place in graphic history as supergraphics. Supergraphics is used in the exterior and interior in large size and as a piece of architecture. There are effective examples of 3D typography in supergraphics. Armin Hofmann's work is a good example of this field for a high school in Switzerland's Disentis region in 1975. Hofmann has placed 3D writings as a relief on the exposed concrete using the same material (Figure 6).



Figure 6. 3D typography studies by Armin Hofmann in a high school in Disentis Switzerland (Poulin, 2012, s. 178)

Another example for Supergraphics was made by James Wines and his firm SITE for 'Best Stores'. Wines has made different post-modern designs for nine stores in America in 'Best Shops' (Figure 7).



Figure 7. 3D typography designed by James Wines for 'Best Stores' (Poulin, 2012, s. 186, 187)

An example of 3D typography used on the outside is the Italian graphic designer Pierluigi Cerri designed for Fiat's Lingotto in 1983. Cerri used a sans serif typeface. Each letter is 4-m tall. The metal and glass material are used in bright blue, green, red and yellow colors to enhance the remarkability of the design (Figure 8).



Figure 8. 3D typography designed by Pierluigi Cerri for Fiat's Lingotto
(www.static.panoramio.com/photos/original/193090.jpg)

Another field of use of 3D typography is posters. The Typotecture exhibition, which was opened by Andreas Janser in the Zurich Design Museum in Switzerland in 2000, has an important place in poster design in terms of 3D use of writing. The posters that typography used as an architectural object were a part of this exhibition, with works of important designers. Sometimes used as a building, a book or a chocolate in a supermarket, the writing was used as 3D objects placed in gravity on many posters. Although the writing is designed with form, surface and color, like a 3D real object, they seem like the 2D text is often artificial (unreal).



Figure 9. Poster design by Claude Luyet, Losif Bograd 'Kino Massam-Kino Masse-Mass Cinema', Mhaly Biro 'Humanic' posters (poster collection typotecture, 2002, İsviçre, Lars Müller Publishers Baskı İtalya)

According to Andreas Janser, 'It is inevitable that a poster is confusing in the absence of words. But without a realistic image it can function well. The writing is clearly a indispensable, and accomplishes two quite different things: it delivers linguistic content as a text, and visual imagery for the eye as a design element'. (Typotecture, 2002, p. 5). It is important to choose a poster as a graphic product at the exhibition. It encourages the use of experimental typography to encourage the use of original writing in poster texts. Writing grows and expands in space and moves the power and emotions. The addition of architectural dimensions adds on writings an excellent diversity and richness in terms of visual impact (Figure 9).

It can be said that there are similarities between typography and architectural forms; Typographers and architects work on the same design principles such as grid structure, ratio and balance in terms of design. With the use of writing as an architectural element in poster designs, typography is on a large scale (such as the use of a building) and is more becoming impressive. According to Felix Studinka '... architecture can be read like a text'. Also, typography recognises that if we want it to be a physical experience, he is aware of winning a sculptural entity. The power of thinking by the implication of the architect, typography gives a sense of magnitude, making it understandable as a building (Figure 9). We find it appropriate to say 'typotecture'. The ability of typography to construct hybrid links in this way with architectural forms (2002, p. 5).

According to Koksal (2004), in a significant part of the posters in exhibitions, we encounter solutions that transfer the typographic character to the third dimension. However, they do not form an integral whole. Some of these studies are representations of the architectural, urban or natural object desired to be displayed. Igarashi's 'Houses of Tomorrow', Lupi's 'The Future of the Cities and Metropolises of the World', Miki's 'Kar-Hokusetu Snow Mountain' and an anonymous poster 'Tungoram' are posters entering this section. In these studies, the writing creates a second indicator level with a new coding. The first indicator level is the indicative function of the text, which is expressed in terms of the above meaning. At the second level emerging with the 3D image, the indicative/indicated relation is not imperative, but is motivated. So the image emerges through the interpretation of the typography in the third dimension (the new one), in a causal relationship with the indicated. Even if we do not read the text, it is clear that we are facing a representation of architectural object, a city space or a snow mountain. In this study, it is seen that the first indicator level and the second indicator level define different indicators, (first level is writing and image at the second level created by the writing) but the indicators remain unchanged. 'Residence' (habitat) or 'Metropol' has the same indicator at both the indicator levels. On the 'Tungoram' poster, the situation changes: this time with the change of the indicative the indicated changes as well, the Eiffel Tower, which is not at the first indicator level, becomes the new indicated. (<http://v2.arkiv.com.tr/ko15067-yazin-in-anlamlari.html>).

4. 3D text in the digital environment

Thanks to desktop publishing and the development of information technologies, the possibilities of writing have increased by expanding the printed page to the screen and digital imaging environment. And with the production and use of 3D software in the digital environment can be mentioned 3D writing. Many software have been developed to supply 3D visualisation requirements. AutoCAD, 3Ds Max, Maya, Softimage, NewTek LightWave and Cinema 4D are the primary software used. In this field, architectural and industrial product designers are involved in using 3D software. It has been difficult for visual communication designers to adapt to this field because of the complexity of 3D software programmes and the long learning process. Afterwards, development of 3D technologies in digital environment and it has increased its popularity with the introduction of not only experts but also personal computer users. Some 2D software has 3D tools and add-ons. However, these extensions are not as comprehensive as they are in 3D softwares, they are simple.

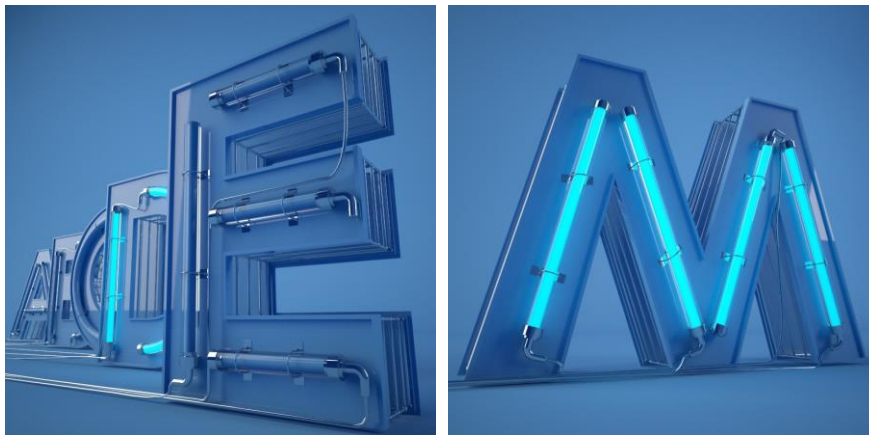


Figure 10. 3D typography examples made in cinema 4D software
(<https://www.behance.net/gallery/27131559/meeds-alphabets-V12-free-c4d-file>)

Designs of 3D typography consist of a series of steps. Design, storyboard, modelling, covering, lighting, animation, render, sound design and editing stages. The next stage is modelling.

Storyboard (especially for motion designs) or Layout is the first step in 3D Typography Design. The next step is modelling. 3D software is required for this. If you want to motion 3D text, animation should be done. This stage makes in 3D software. The next stage is the model is covered with the surface and illuminated with the lights placed around. This stage also makes in 3D software. The moving or still image is visually render in a 3D programme. The next steps are makes in the post-production software; merging of 3D writing images, If there is sound, it is added, makes of visual effects and finishing the work with rendering.

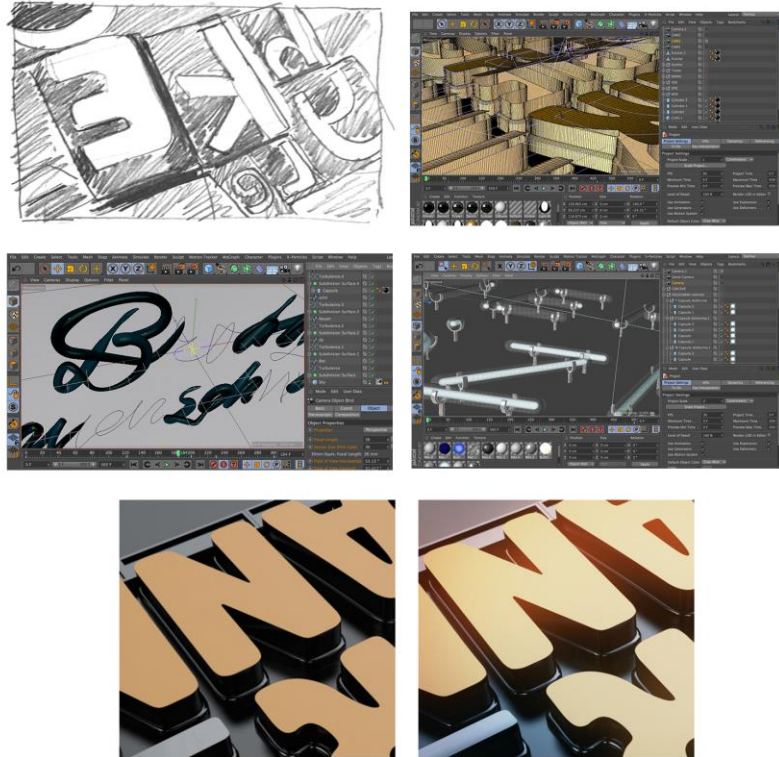


Figure 11. 3D typography production stages

5. Results

Designs after 2000 years are made with a variable and sustainable approach to the new media. (laptop computers, tablets and mobile phones). In this phase, which is accompanied by the change and development of technology, an examination of how typographic applications that have become widespread are designed and produced as a 3D multimedia product, it seems necessary for an effort to meet the expectations of communication of the day and the future with visual designs.

This research examines the usage areas of the digital environment by exploring the use of typography and 3D concept, revealing that the 3D digital typography design has a continuously evolving structure in today's digital world. It has been shown that this structure contributes to the elaboration of more efficient and more equipped designs within the framework of typographic elements.

Depending on the design of the 3D typography in the digital environment, it consists of a series of steps: modelling, covering, lighting, animation, render, sound design and fiction, such that, all of these stages are separate areas of expertise and often require multidisciplinary work. With the possibilities of technology, typographic studies in digital environment presents new possibilities of expression to the audience.

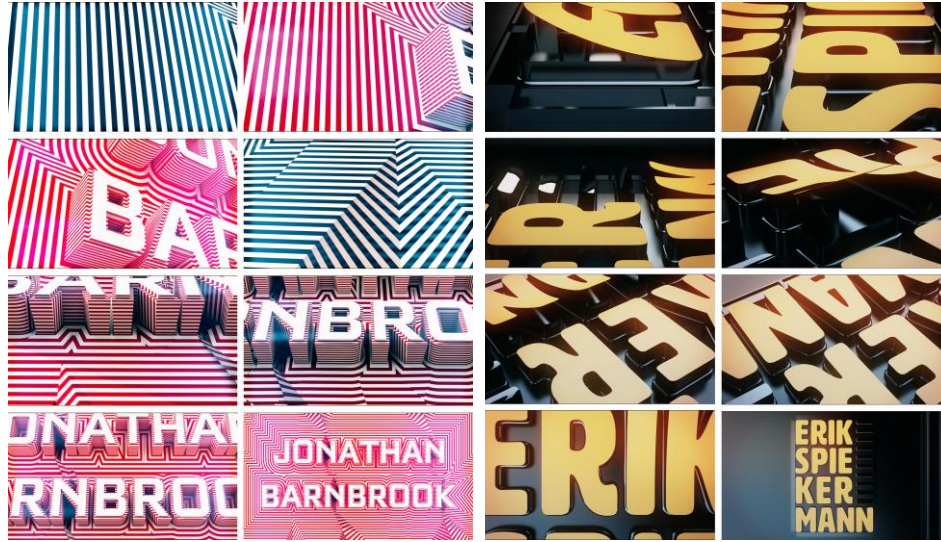


Figure 12. 3D typography final state

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