

DESIGNING UNIVERSITY DIPLOMAS

Assoc. Prof. Melike TAŞCIOĞLU*

Lect. Cemalettin YILDIZ**

Spclst. Dilek ERDOĞAN AYDIN***

ABSTRACT

This paper presents the designed elements of a diploma. Etymologically, the word diploma means a paper that is folded in two. However, the current value and meaning is far beyond this basic physical description. Diplomas are valuable papers that represent significant aspects in two different layers: the first one being the demonstration of personal accomplishment and the second being the representation of the institution. The design of diplomas therefore should reflect and uplift the identity of the university and at the same time carry the latest innovations and technologies to prevent from forgery. Combining the elements of graphic design on a diploma with security systems is the main subject of research of this paper.

Key Words: *Diploma design, Graphic design, Security Paper, OVD, Corporate Identity Design*

This study was supported by Anadolu University Scientific Research Projects Commission under the grant No: 1602E044.

* Anadolu University, Faculty of Fine Arts, Graphic Design Department, Eskişehir / TURKEY,
mtascioglu1@anadolu.edu.tr

** Anadolu University, Faculty of Fine Arts, Graphic Design Department, Eskişehir / TURKEY,
cyildiz@anadolu.edu.tr

*** Anadolu University, Faculty of Fine Arts, Graphic Design Department, Eskişehir / TURKEY,
derdogan1@anadolu.edu.tr

ÜNİVERSİTE DİPLOMALARININ TASARLANMASI

Doç. Melike TAŞÇIOĞLU*

Öğr. Gör. Cemalettin YILDIZ**

Uzm. Dilek ERDOĞAN AYDIN***

ÖZET

Bu araştırma diplomanın tasarlanan öğelerini incelemektedir. etimolojik olarak diploma ikiye katlanmış kağıt anlamına gelir ancak diplomanın güncel değeri ve anlamı bu fiziksel tanımlamanın çok daha ötesindedir. Diplomalar önemli olguları iki farklı katmanda temsil eden kıymetli evraklardır: diplomalar kişisel başarının tescilleri diğer yandan da kurumsal değeri tanıtır. Bu nedenle diplomaların tasarımı üniversitenin (veya diplomayı veren kurumun) kimliğini yansıtmalı ve yüceltmeli ve aynı zamanda sahteciliği önleyen son teknolojileri ve güvenlik önlemlerini barındırmalıdır. Diplomalarda güvenli basım öğelerini tanımlamak ve grafik tasarım öğelerinin belirlemesi bu araştırmanın temelini oluşturmaktadır.

Anahtar Kelimeler: *Diploma Tasarımı, Grafik Tasarım, Güvenlikli Basım, OVD, Kurum Kimliği Tasarımı*

Bu çalışma Anadolu Üniversitesi Bilimsel Araştırma Projeleri Komisyonu tarafından Kabul edilen 1602E044 no'lu proje kapsamında desteklenmiştir.

* Anadolu Üniversitesi, Güzel Sanatlar Fakültesi, Grafik Bölümü, Eskişehir / TÜRKİYE, mtascioglu1@anadolu.edu.tr

** Anadolu Üniversitesi, Güzel Sanatlar Fakültesi, Grafik Bölümü, Eskişehir / TÜRKİYE, cyildiz@anadolu.edu.tr

*** Anadolu Üniversitesi, Güzel Sanatlar Fakültesi, Grafik Bölümü, Eskişehir / TÜRKİYE, derdogan1@anadolu.edu.tr

I. INTRODUCTION

Diplomas are documents given by educational institutions conferring a degree on a person or certifying that the person has satisfactorily completed a course of study [1]. There are more than 20.000 universities worldwide [2] and considering the millions of graduates from these universities, the number of diplomas printed every year is an important design problem. A diploma is a document that needs to have archival quality as well as a sustainable nature in its physical aspects. When the security and corporate identity aspects add to these, it becomes a complex design product that needs to be examined.

Security printing is an area in which emerging technologies are combined with the classic approaches of graphic design. Money, bonds, cheques are some examples that usually carry the conventional design elements but use high technology security elements to prevent forgery. Diplomas also have this aspect of carrying classic language of design while using forgery-preventing methods (such as OVD's, filigrees, guilloche, QR-codes etc.) all of which are a designed product on its own.

This research examines the design of diplomas in two levels. The first level is the security level and the design of security elements, and the second level is the design level that includes the identity of educational institutions communicated by the graphic design of the diploma, as well as the sustainability and the print production issues.

II. THE SECURITY LEVEL OF DIPLOMA DESIGN

Rudolf Van Renesse defined a security printed document as “using a print media to produce a document whose identity, validity, and authenticity can be verified [3].” Diplomas are an important example for security printed documents, and they carry their university's identity while carrying the responsibility to secure the information and honor proposed on them. With the advance of desktop publishing and the democratization of production techniques after 1980's, forgery started to become a bigger issue and many different methods of security printing have emerged.

The number of earned PhD degrees in the United States is 40,000 to 45,000 each year. The number of fake PhDs bought each year from diploma mills exceeds 50,000. In other words, more than half of all people claiming a new PhD have a fake degree[4]. This fact opens a new area for security technologies that has been widely used in money and other secured documents; showing that diplomas are one of the most copied documents.

The security printing elements usually are covered in two categories: Overt and Covert [5]. The overt category includes the security levels that can be seen by the naked eye and is open to all users, while the covert category includes security techniques that needs validation with the help of a gadget or laboratory and can't be seen by the naked eye.

According to Holopak [6], one of the world's largest suppliers of security hot stamping foils, a properly designed OVD typically carries three levels of verification:

- The first carries an easily detectable security element that can be verified with minimal training and simple tools, either with direct sight or by using a magnifying glass.
- At the next level, an inspector using relatively simple tools, such as a small microscope, pocket laser beam of light, or a portable ultraviolet (UV) light, can determine the authenticity of the security device.
- The final level of verification provides the most sophisticated security. The authenticity of this device is confirmed by a senior forensic specialist utilizing lab equipment and specialized testing devices.

For diplomas the use of the first two methods is appropriate. It is also vital to conduct a multi-level approach by using a security product from each level. Security paper as diplomas should carry various security elements simultaneously [7].

The methods that can be used for diplomas can be listed as follows:

a. OVD (Hologram/Trustseal): Optical Variable Device or OVD is an iridescent foil with an image, such as a hologram, that is hard to copy or replicate. "Holograms represent a complex technology, but with the resources available today, there is a fairly low barrier to entry. If brand owners or document providers are concerned about current or potential exposure to counterfeiting, it is important for them to recognize there are more effective and viable solutions available. That's where the most advanced and proprietary OVD's such as Kinegram and Trustseal come in, allowing one to truly raise the bar and enhance the level of security provided." [8]

OVD's can vary in size and shape, as well as the design of the interior image, they can also have various effects such as relief, mini texts, colored areas, matt areas, black or gold areas. The designer works in a vector format software to produce these images.



Visual 1. Examples for OVD's. Left: Ready made hologram stickers found for online purchase threaten the liability of hologram technique. Right: Hologram design for bitcoin card. (Source: <https://minrui.en.alibaba.com>, <http://i.imgur.com/J0XYaVM.jpg?1>)

b. Anti-Copy Ink: A security device that is used to differ the original from the copy is the anti-copy ink, a special florescent orange ink which is applied to the surface in the offset printing stage. The areas where the ink is applied cannot be seen in photocopy or scan. The application of the ink in the diploma design should be apparent by the naked eye and should be homogenous throughout the design so that all parts of the document carry this security feature.

c. Security Fibre: A security feature that is based on the paper substrate, security fibres are small viscose or polyamide particles inside the paper. These fibres can be visible to the naked eye, and/or can appear with the presence of UV light [9].

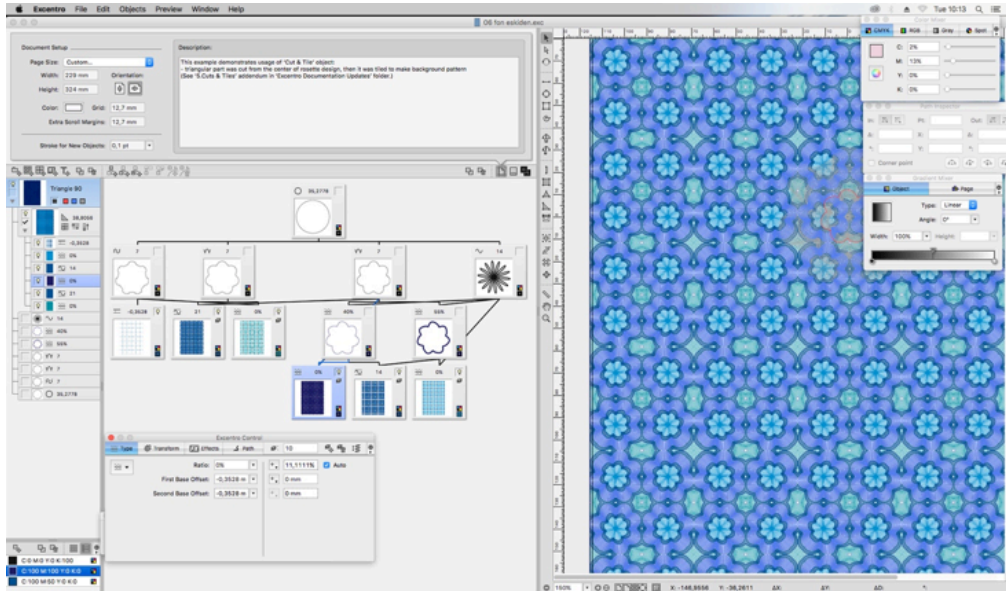
The selection of the paper and the option to be seen by the UV light and the colour palette of the paper and the fibres is among the features the graphic designer needs to make decisions on according to the overall design.

d. Laser guard: The printing of diplomas is usually done in two stages. The first stage is the offset printing stage where the standard diploma outline is printed, and the second one is the laser printing stage where the specific information of the graduate and the name of the specific program and graduation dates are filled in. Laser guard is a paper feature that prevents the toner of the laser printer from being scratched away from the paper. This prevents alteration of the original document.

The laser guard paper has special fibres that absorb the toner ink, and when scratched, the areas that are being scratched become corrupted so the document cannot be used anymore.

e. QR Code: A security device that uses an electronically generated code to link the source to verify. QR codes can be used in diplomas to create a link between the diploma document and the education institution.

f. Guilloche: A security device that is usually seen in money and cheques, a guilloche is an elaborate motif, usually drawn with many thin lines and cannot be copied by hand. In diplomas, guilloche can both be used in the background and as a frame. There are also some vector software that can be used to be used to generate guilloche patterns.



Visual 2. Screenshot of Excentro. A software used to design guilloche. (Source: Dilek Erdogan Aydm)

g. Filigrees (Watermark): A security feature that is based on the paper substrate, filigrees are images or type that appear when the paper is looked at in front of a light source. Filigrees are produced in the paper production stage where special moulds are applied to the paper pulp. Some paper companies offer ready made design of filigrees and it is also possible to produce a special filigree for a specific institution. The design of this filigree should also be conducted by the graphic designer of the diploma.



Visual 3. Left: The moulded mesh used to produce the paper with the watermark. Right: The watermark can be observed when paper is looked at in front of a light source. (Source: http://www.cartamaanonelleande.org/IT/galleria_filigrane)

III. THE GRAPHIC LEVEL OF DIPLOMA DESIGN

A diploma represents a university's history, its roots, its prestige and its vision. It is the most valuable document a university distributes. While representing the corporate identity of the university, diplomas also carry the responsibility of hosting a university's respectability and value in one single surface.



Visual 4. Left: Various diploma designs of some institutions. (Source A: www.diplomaframe.com, B: http://www.coroflot.com/be_u/achievements, C: <http://harvardextensionsschoolchela.blogspot.com.tr/2015/01/harvard-extension-school-certificate.html> D: http://newruski-narchives.org.uk/wp/?page_id=867, E: <http://diplomatovar.blogspot.com.tr/2015/04/diploma-graphic.html>)

Graphic design has the power and ability to represent such notions on printed and digital environments. From the page layout to the print production, graphic designer's responsibility is to project the university's identity and vision on the diploma in an accurate way. In Picture 1, examples of diplomas from various institutions are shown. These five different designs convey different images of their institutions. For example, it can be argued that Diploma A represents an older, rooted and conservative university, whereas Diploma B university is a relatively new, approachable and mild institution. The visual communication of the diploma in Diploma C is classic, poetic and conceited, whereas in Diploma D a bureaucratic, modest and momentary language, and in Diploma E a more modern, minimal and mundane language is used. To be

able to implement a successful design, the institutions should determine its mission and vision accurately and the designer should be able to represent these values through the design of the document.

Diplomas are valuable papers that represent significant aspects in two different layers:

- Diploma is a demonstration of a personal accomplishment: Diplomas are the proof of the degree taken, and therefore they should be able to visually represent the value of the achievement. Diplomas should also be able to build a connection between the student and the institution, and promote a sense of trust and adherence.

- Diploma is a significant representation of the institution: Diplomas are one of the vital elements of the corporate identity of the institution. “corporate identity is the most important strategic value an institution can have” [10]. The corporate image perception on masses directly relates to the corporate identity design and diplomas should be able to successfully carry and sustain this value.

Keeping these two layers in mind, the designer needs to design the different levels of information and communication.

When it comes to diploma design, the prestigious values to be represented on paper, appear in forms of complicated material and techniques. The valuable documents accommodate security printing techniques (covered in Chapter II) which make printing stage a more complicated and difficult stage. The order of printing gilded ink, the application hologram, and the laser print for individual naming of diplomas for example, can effect the whole process and the outcome. Another important matter is the circulation and number of editions. The average number of graduates of the institution directly effects the production technique of the diplomas.

Diploma is a conclusive and a perpetual document at the same time: it represents the end of the educational era, and continues to demonstrate an honour in the future. Therefore, the design of diploma should feature these aspects; it should be able to represent the honour and should be sustainable and archival.

There are usually different levels of print production to consider: the offset printed production stage in which the standard information and the identity of the university as well as the security aspects are produced, and the laser printing stage in which the specific information of the graduate is laser printed on the already offset printed half-empty form. When the number of graduates is lower, the individualization of diplomas can be applied by hand by a calligrapher.

The laser printing stage produces some restrictions in design: The institute’s authorized officers who will be printing the specific information needs to be able to use the fonts, spacing, kerning accurately to keep the overall design, therefore it is important for the graphic designer to foresee such problems and prevent any design mistakes by using an accessible font and giving specific instructions beforehand if needed.

IV. THE MAIN BODIES OF A DIPLOMA

The main bodies of a diploma can be listed as follows and can be grouped as the recto elements that are placed in the front side of the paper, verso page elements that are placed in the back side of the paper, paper elements that are intrinsic qualities of the paper and other elements such as the presentation and distribution elements. This is a general list however, and not all of the elements below are necessary in every diploma and the final list depends on each institutions needs and requests:

a. Recto elements

The front side of diploma carries the main elements of information. The main components such as the name of the graduate and the institution logo are placed on the recto. The ornaments and guilloche is usually used on the recto as well, and the hierarchy of information should be carefully implemented. The elements on the recto side are usually as follows:

- Logo area
- Type of Diploma/Degree
- Name and Surname of the Graduate
- Text
- Official Seal (OVD)
- Signature of Rector /and Dean
- Border/frame guilloche
- Background guilloche
- Anti-copy ink design/guilloche

b. Verso elements

The verso of the diploma usually carries the information of the identity card of the graduate and the information to be traced by authorities. The name and address of the graduate can also be placed to be seen through window envelope and in this case should be designed accordingly.

All of the security elements should be easily controlled by the authorities who need approval of the authenticity of the document. The information on which security precautions are used, and how it can be checked, should be clearly explained on the diploma. This information is usually given on the recto of the document. This information is especially vital for diplomas with higher circulation. A diploma should not only carry the appropriate security elements, but also be able to give explanation and motivation to check the authenticity.

The elements on the recto side are usually as follows:

- Diploma Number
- Detailed Identity Information of Graduate
- QR Code
- Security Explanation/Information

c. Paper elements

These elements are the security elements that are intrinsic to the paper. A paper choice with a filigree (watermark) is usually one of these intrinsic elements. The filigree can be selected from a selection of ready-made designs or can be customized. The customized design can be designed by the diploma designer in collaboration with the paper company designers. It should be kept in mind that the production of the customized filigree means the production of paper itself, and adds a few months to the production period.

The security paper has also elements that need to be decided by the designer. The decisions of colour and type of invisible and visible fibres should be made keeping the overall diploma design in mind. The elements paper as follows:

- Filigree design
- Security Fibre options

d. Other elements

The diploma is a valuable document and the presentation design of this document is as important as the document itself. The envelope and the folder of the diploma are the first elements the user confronts. Therefore the design of these elements should reflect, consummate and enhance the diploma.

Another aspect to consider is how the diploma reaches its owner. If sent by post, the folder and the envelope should be designed accordingly. The designer should make research on how this path of transportation and make choices of material and design. Window envelopes, the archival quality of the folder, the presentation quality of the folder are among decisions to be made at this point. Other elements can be listed as follows:

- Presentation Folder
- Envelope

Other factors to consider while designing a diploma is the archival quality of the paper and the ink, the sustainability of the design and the materials used, the cohesion of paper, offset ink and laser toner ink as well as the cohesion of various diplomas given by the same institution.

CONCLUSION

Graphic design is a very broad area ranging from web design to book design, and in each different medium, the designer needs to learn the technical aspects and technologies that are specific to that medium. Diploma design is a perfect example of how only a single piece of paper can carry so much information and different materials and technologies in its body. It is also a great example to remind designers how production gives shape to the design itself.

When designing a diploma, the security advances and procedures are the most important elements to consider and start to think about. Diploma is a subject of design with high security, therefore it is vital to first learn the newest technology on security printing and paper. However, it is not always possible to control every step and learn every technology and software, especially in security design. The software being used to create guilloches, holograms, trust seals, may not be available to the designer. The companies who create trustseals usually do the final work in a self-enclosed way for security reasons. Therefore, the communication between the companies should be well made.

The circulation and edition is another subject of great importance. The number of graduates of the institution can vary from 100 to 1 million, and this makes a great difference in the approach to production. This number can change everything from the handwritten graduate names to decisions on OVD's. For example, the cost of trustseal mold production (origination) can make a big difference in the budget for lower circulations, while in higher circulations, the designer should consider the diplomas to be filled in with a special software on the computer and the fonts and specifications should be arranged accordingly.

A diploma is a design product that is a vital part of the corporate identity of a university. The design of a diploma should be sustainable in two levels. The first level is the consistency of the identity. The elements used in the corporate identity and the mission and vision of the institution should be reflected through the design of the diploma. The material and production should be designed to maintain the same quality over the years. The institution should be able to control the consistency of the production and the overall quality. To maintain the quality, a commission of designers can be formed.

The second level of sustainability is the permanence and durability of the document subsequent to production and distribution. After the diplomas are printed and distributed, the potential archiving means should be predicted and paper stock and ink should be chosen accordingly. In higher numbers of circulation, the choice of materials and design has a bigger impact on economical issues as well as ecological. The designer therefore has to choose the optimum design to reduce any waste and avoid any possible ecological harm caused by the production.

A successful diploma design should be able to offer a long term solution, thus, to establish a healthy communication of the institution and ensure the permanence and sustainability of this image. All design decisions to be implemented to the diploma should be made in a long term perspective.

REFERENCES

- [1] *diploma*. Dictionary.com. Dictionary.com Unabridged. Random House, Inc. <http://www.dictionary.com/browse/diploma> (accessed: October 16, 2016).
- [2] <http://webometrics.info/en/node/36> (accessed: October 16, 2016).
- [3] Warner, R. & Adams II, R. (2005). *Introduction to Security Printing*. Sewickley: PIA/GATF Press.
- [4] Ezell, A. & Bear, J. (2005). *Degree Mills: The Billion Dollar Industry That Sold Over a Million Fake Diplomas*. New York: Prometheus Books.
- [5] [http://www.kurz.de/kurzweb/us/home.nsf/contentview/CA17D8E76704286BC125720C0050693A/\\$FILE/CA-17D8E76704286BC125720C0050693A.pdf](http://www.kurz.de/kurzweb/us/home.nsf/contentview/CA17D8E76704286BC125720C0050693A/$FILE/CA-17D8E76704286BC125720C0050693A.pdf) (accessed: April 6, 2017).
- [7] <http://www.tappi.org/content/events/07place/papers/vig.pdf>
- [6-8] Boyle, E. (2002, August 1). *Foiling Counterfeiters*. Retrieved from PFFC: Paper, Film & Foil Converter: <http://www.pffc-online.com/magazine/1691-paper-foiling-counterfeiters> (accessed: October 14, 2016)
- [9] <http://www.security.arjowiggins.com/security-features/security-fibres>
- [10] Hatch, J. & Schultz, M. (2011). *Marka Girişimi*. İstanbul: Brandage Press.