

Interactive Narratives and Design: Exploring the Interface of Comics, Video Games, and Gamification

edited by
Nadire Şule Atılğan
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To the gamer kids of the
1980s who refused to grow up...

Presentation

Video games, which have been researched since the 1950s but entered our daily lives in the 1970s and 80s, were only used to have a good time back then, but today (2025) they have become an important part of our culture... While we have been talking about the language that shapes such games changing or will change human culture for only a few years, our children have started to learn coding before they learned to read for the world of the future shaped by unlimited products. These types of products, which we now simply call "application"; have become usable in practical tasks in daily life as they combine with technologies such as Augmented Reality. New life forms created with 3D prototyping systems and developments in robotics are just around the corner!

New technologies affect all of us amidst all the daily hustle and bustle and work. As the "sons/daughters" of developing humans, our hunger for learning increases a little more every day. Despite the multitude of subjects to learn, test and apply, in the future, they will be born and separated from each other with modernity; It is impossible not to notice that the fields of design and art tend to merge and hybridize with fields such as engineering design, medicine, education. The fact that it is unlikely for an engineering product to continue its existence without product design, graphic design, interface design, etc., not only intertwines design fields with vague boundaries even in the 21st century, but also brings other fields closer to the fields of design and culture. Every passing day, I see graduates of engineering or informatics, literature or law applying to our graduate programs in the field of design. Unfortunately, the knowledge gap between fields (mathematics, physics, coding, etc.) prevents designers from considering graduate education in engineering. On the other hand, in addition to the fact that the generation raised as a result of coding and robotics education that started in primary school will already overcome these boundaries in a few years, today, in a promising way; global trends in learning and education, the existence of those who overcome these obstacles, albeit a few, with their own personal desires and ambitions, the widespread maker culture and DIY culture show that such problems can be overcome. I personally expect a "Brave/Beautiful New World"¹ to emerge with very powerful products through such interactions. Naturally, new products also bring with them unique ethical issues. We

¹ Brave New World is a dystopian novel by English author Aldous Huxley, published in 1932. The word "brave", which meant "beautiful" in Shakespeare's time. It describes a future designed for a tightly controlled society.

are watching with astonishment that the world is entering a new strange era and that basic human values are being destroyed. Nevertheless, maintaining our hope is necessary to find the strength to live. As an industrial product designer who started his university education at the faculty of medicine, I have been waiting excitedly for a very long time for topics such as 3D production, living structure design, etc. that are developing with coding and robotics support. Between us, I recommend that young people, as individuals who direct and will direct their own learning today, look at the world with critical eyes and hope, and read a lot within the framework of their interests to develop their imagination. I would like them to know that expanding their areas of interest in this way plays a very important role in creativity in every field.

The Rise of Games and Toys in the 21st Century or DIY / Do It Yourself! culture, Maker / Producer culture and the production of Anti-Capitalist ideals, as I have stated in articles on the production of games and toys, which affected not only the children's world but also the adult world, if we summarize the situation we have come to today: we can say that games and toys are now embedded in almost every product and can be perceived by non-experts. While the applications in education with a history of 30 years have achieved success in keeping learners active with gamification, on the one hand, these gains will obviously expand by evolving into applications that combine games and business life (Atılğan Nadire Şule, (2008)², (2009)³, (2013)⁴, (2013)⁵, (2014))⁶.

We at Hacettepe University Faculty of Fine Arts are working to be pioneers in keeping up with innovations. In its 40th year, as of March 2024, we established the Department of Digital Game Design, a program shaped by art and design within our faculty. This book, which we started to work on to explore Interactive Narratives and Design at the same time, was created by 11 different authors to question the complex relationships between comics and video games. Comics or animation, interactive applications and e-book applications, which are dynamic forms of interactive storytelling, share a common ground in attracting the attention of viewers and developing immersive experiences. Analysis of narrative structures that merge

²Atılğan Nadire Şule, (Fall 2008) "Toys and Their Evolving Role in the Aestheticization of Everyday Life", The Journal Of International Social Research, Volume1, Issue:5, 71-80, ISSN: 1307-9581

³ Atılğan Nadire Şule, "The Toy State of the Substance: The Rise of Play and Toys in the 21st Century", II. Uluslararası Türk El Dokumaları (Tekstil) Kongresi ve Sanat Etkinlikleri, 275-281, Konya, (2009).

⁴ Atılğan Nadire Şule, "Art, Design, Toys: 20th century Avant-Garde", Sanat Yazıları 25-26, Güz 2013, Sayı 25/26, 101-112, ISSN:1300-6665. (2013).

⁵ Atılğan Nadire Şule, "Ethics, Culture and Production of Anti-Capitalist Ideals: Emerging Craft Consumer and DIY Activities on Web 2.0", The Inaugural European Conference on Arts and Humanities Thistle Brighton, Brighton, UK, July 18-21 (2013). ISSN 2188-1111 pp 447-452)

⁶ Atılğan Nadire Şule, "Toy as an Object of Prosumption and Designer as a Craft Consumer", EJRE European Journal of Research and Education Vol 1, Special Issue 1, Art in Education (2014). ISSN 2147- 6284 pp. 51-55.

in comics and e-books or video games, integrations of storytelling techniques, and the main It presents experiences from application studies on bee adaptations and innovations. It explores interactive elements in narratives. Exemplary applications, examination of the impact of cultural elements on graphic design in these areas, case studies on how designers incorporate different cultural influences into their work constitute the subject of the book. Analysis of the impact of video game graphics and aesthetics on comic book art, exploration of how comic book artists incorporate visual elements into their storytelling, and sample approaches to comics that intentionally adopt video game aesthetics can be examined in the book. The roles of comics and video games in gamified educational experiences, the potential to use gamification principles to enhance learning through comics, and case studies on successful educational initiatives combining comics and video games emerge as innovative questions that can be developed at the end of this book. In conclusion, while directing each new graduate study, I would like to state once again that we are aware of the fact that shaping the future is our duty as we strive to combine design and art with high-tech projects, to build and implement an interdisciplinary structure that works in this regard, and we continue our efforts to take an active role in this regard. As for me, I am extremely determined and excited to increase the artist and designer's chance in determining the rules of the game in the future that awaits us. My belief that design can make the world a more livable place is still there no matter what. For this reason, I would like to announce that we have completed our work to open the Creative Industries Non-Thesis Master's Program based on basic art and design education for professionals from all disciplines within Hacettepe University.

I would like to thank my doctoral thesis student Rasim Sarıkaya, who contributed to the creation of the book, and all my students, who are my source of pride with their writings in the book, and my academic friends who share their knowledge to contribute to the field of games, for their efforts and contributions, and congratulate them on their success.

I hope that this book will be a source that inspires innovative studies and questions for designers from all disciplines to develop experimental, creative electronic games.

I wish that the designers expands their field to establish a more livable future...

Prof. Dr. Nadire Şule Atılğan
Hacettepe University
Dean of the Faculty of Fine Arts
April 2025, Ankara, Türkiye.

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chapter 1

Turkish Comics and Visual Narrative Tradition as Objects of Cultural Creation

Rasim SARIKAYA ¹, Nadire Şule ATILGAN²

Abstract

"Amcabey", created by Cemal Rare Güler and published in Yeni Posta newspaper since the early 1930s, is considered the first domestic comic book series in the history of Turkish comics. However, it is seen that examples of foreign comics, especially "Mindericatsız Öyküler" published in the magazine Servet-i Fünun (1891-1944), were published especially after the 2nd Constitutional Monarchy period.

When Turkish comics are considered in the context of visual narrative; Turkish miniature tradition should be mentioned. Because, based on a narrative structure that includes writing-text unity, this example is incorporated into the premises of world comic book history. "Varka and Gülşah", thought to have been illustrated in the first half of the 13th century, is one of the first examples that meets the requirements of sequence as well as text-image unity, with its narrative structure consisting of 71 pictures.

It is impossible to define the characteristics of Turkish comics through stylistic features. These features appear to have developed largely under the influence of Western countries. Therefore, it is possible to define the development process only based on content. Turkish comics from the founding period of the Republic appear as a tool used in the construction process of national identity. On the other hand, the demographic change resulting from the great migration from rural to urban areas since the 1950s has shaped the content of comics. While the social transformation has also transformed the comic book, in parallel with its popularity, the comic book has also contributed to the transformation of visual culture. In this context, the

¹ Assoc. Prof., Çankırı Karatekin University, Department of Graphic Design

² Prof.Dr., Hacettepe University Department of Digital Game Design.

effects of comics on the formation and transformation of Turkish culture constitute the focus of our study.

Keywords: Comics, Visual Narrative , National Identity, Ideology, Culture

1. Introduction

Comics historiography tends to begin the history of the genre with American comics. This tendency is largely based on the argument that examples compatible with current definitions of comics have emerged in American history. One of the most basic emphases in these definitions is the concept of popularity. It should be acknowledged that with this date, the comic book genre has developed a mutual dependence on the concept of popularity. In this context, comics developed depending on their popularity and their popularity was supported as long as it developed. This view denies the knowledge that comics exist independently of their popularity, codes comics as an American production, and describes its predecessors as the origin of comics.

William Hogarth is described as the father of comics by some researchers and Rodolphe Töpffer by the general literature, and the creation of these two names is recorded as the birth of the comic book genre. In this context, the maturity age of the comic book corresponds to the American comic book. After this historical break, it is seen that the American school dominated the world comic book industry as well as comic book history.

When we look at the history of Turkish comics, it is possible to say that a similar historical process has occurred. The history of Turkish comics emerges and develops under the influence of American comics. According to this approach, although the idea that there may be a connection between comic books and the Turkish visual narrative tradition has been expressed, it has never actually existed. Parts of the Turkish visual narrative tradition are not found in the sample that comics historiography refers to when discussing the origins of comics. For example, while non-printed examples such as the Bayeux Textiles (1070) and even the Roman period Trajan's Column (AD 113) are included in this selection, Turkish miniature, which contains the best examples where text and visuals are used together, is not mentioned. Although these examples do not mean that there is a Turkish tradition in the context of comics, they are worth mentioning in the world comics history.

On the other hand, it is not possible to argue that the miniature tradition contributed to the formation of a comic book tradition. Because this tradition entered the process of being abandoned after the collapse of the Ottoman

Empire, and both comics and Turkish art developed under the influence of western art. On the other hand, although the emergence of the comic book structure is attributed to Töpffer, the starting point of the comic book as a mature form is associated with the emergence of daily newspapers and Sunday supplements. Therefore, it was argued that the comic book was an American production and The Yellow Kid was described as the first real comic book.

In this context, the history of Turkish comics is associated with the development of the press sector in the Ottoman period and the emergence of daily newspapers and magazines. The Republic period had to be waited for the first domestic comic book examples to emerge. From this date until today, Turkish comics do not show a unique formal feature, and the development stages of Turkish comics can be read largely depending on the content. This research focuses on the transformation of Turkish comics and the ideological, social and cultural factors affecting this transformation. These effects are largely related to the ideology of the founding period of the Republic of Turkey and the developments after the transition to multi-party life in 1950.

2. Turkish Visual Narrative Tradition

The origins of the Turkish depiction tradition are associated with the Uyghur Turks in the relevant literature. During the period of the Uyghurs, the first Turkish state to establish a settled life, the first examples of civil architecture and arts based on it emerged. What makes the Uyghurs important in terms of Turkish art and art history is that they illustrated religious books after they adopted the Manichean religion, and this is how the first miniature book examples of Turkish art emerged. The teaching of this religion, which emerged in Iran in the 3rd century AD and is based on natural philosophy, is based on fine arts. Mani is considered the inventor of oud and also the first painter. It is possible to argue that this philosophy was effective in the formation of the Uyghur painting tradition. Very few examples of book paintings, mostly scattered, consisting of frescoes from this period, have survived. The majority of these works date back to the 9th and 10th centuries [14]. On the other hand, the oldest illustrated manuscripts that have survived to the present day belong to the Uyghur period. The tradition of storytelling, where pictures and writing are used together, is widely seen in China, India and Tibet, where Buddhism is widespread. The tradition of telling stories verbally and animatedly, accompanied by pictures made on fabric, dates back to the Tang Dynasty, which reigned between 618-906 AD. Some of the examples proving that this tradition later spread to Turkestan,

Iran and finally Anatolia have survived to the present day. It is thought that the painting fragments attributed to Mehmet Siyah Kalem and found among the palace albums were also used in this and similar storytelling shows [19].

Many of the Manichaean manuscripts belonging to the Uyghur Turks, who reigned in the mid-8th and 9th centuries AD, included pictures, but only in one of them were the text and miniature used in a rare relationship. Prophecies are mentioned in this work, registered in Berlin with number M 55622, written in Persian with the Manichean alphabet and divided into 12 equal rectangular parts. In these manuscripts, miniatures were placed parallel to the texts. What makes this manuscript different from others is the existence of a semantic relationship between the miniature and the text. The texts in these manuscripts are located in three different positions: on the clothes of the figures, next to them or inside the plates [3]. Even though there is no connection, it may bring to mind "The Yellow Kid", which is described as the first real comic book in American historiography.

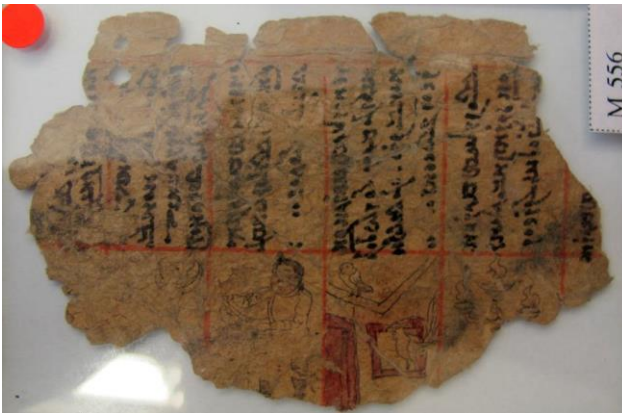


Figure 1

The traces of these examples, recorded as the first examples of the Turkish miniature tradition, can be traced back to the miniature art of the Ottoman period. Uyghur elements who migrated to Anatolia with the collapse of the Uyghur State actually influenced the entire Turkish-Islamic miniature art of the Seljuk and Ottoman periods. So, it has been recorded that muralists of Uyghur origin produced works during the Seljuk period and in the Ottoman mural workshop. With the migration of Turks to Anatolia and the adoption of Islam, it is seen that new influences were added to the pre-Islamic Uyghur miniature

tradition. In this context, the Seljuk period miniature displays a synthesis feature. In terms of this synthesis, which is called Turkish-Islamic miniature art, in the end of the 12th century and the 13th century are of great importance. This period, in which Islamic art created its own motifs and styles with the contributions of Turkish miniature, greatly influenced the subsequent periods [14].

This tradition produced some of its most important works in the 13th century, during the Anatolian Seljuk period. The "Varka and Gülşah" masnavi, which is thought to have been painted in Konya during this period, which is described as a very productive period in terms of culture, is about a sad love story written in Persian by Ayyuki, one of the important poets of the 11th century, and presented to Sultan Mahmud of Ghazni [24]. It is known that this work, illustrated by the miniaturist named Hoylu Abdulmümin Bin Muhammed, is the only illustrated copy. In the manuscript, which includes a total of 71 pictures, the story was tried to be visualized sequentially in detail in miniatures placed in horizontal panels within the text [19]. According to Mahir, the origins of this manuscript date back to the Uyghur depiction tradition.



Figure 2

This synthesis reached its classical form during the Atabek and Turkish principalities that spread in Iran, Mesopotamia, Syria and Anatolia as a result of the disintegration of the Great Seljuk State. With the Mongol invasion of the Near East in the 14th century, new influences emerged in the Seljuk synthesis and influences from Far Eastern Chinese art were seen. The developments that took place afterwards

were conveyed by İnal: "In the works of the 15th century Timurid and Turkmen dynasties, we see the expression of this surface taste in increasing and decreasing proportions in a certain composition order and a painting surface woven from patterns. The realism movement in the works of the 15th-century Timurid Lerat School and the miniaturist Behzad prepares the 16th-century Safavid painting to combine decorative taste and genre motifs, and we observe the application of a new realistic but permanent style in crowded, richly motif scenes containing many motifs from daily life" [14]. It is seen that this style was developed and continued during the Ottoman period. During the reign of Bayezid II, who had a great interest in poetry, philosophy, astrology, cosmography and mechanics, it is seen that works with a literary subject, such as "Kelile" and "Dimne", were illustrated in the palace painting workshop, as was the tradition in the contemporary Timurid and Turkmen palaces [24]. It is one of the most important manuscripts that are the product of Turkish-Islamic synthesis and dates back to A.D. IV. It is known that the fable called "Kelile and Dimne", which is one of the most important manuscripts that are the product of Turkish-Islamic synthesis and dates back to the 4th century AD, was first written by Beydeba (Bidpay), a Brahmin of the Vishnu sect in India. It became very popular during the writing period, called "Kratka Dimna" in Sanskrit, and was copied many times in different geographies and periods. After a long journey, the work was finally published in the 16th century. It is known that the work was finally translated into Ottoman Turkish in the 16th century after a long journey and was presented to Suleiman the Magnificent (1520-1566) by Ali Çelebi under the name Hümayunname. The content of the work consists of cautionary stories told through the language of animals. The illustrated copy of "Kelile ve Dimne" is located in different collections in scattered pages. The most important copy of "Kelile and Dimne" with miniatures, dated to the 18th century, can be seen in the Paris National Library (Arab 3465) [14].

In the Ottoman miniaturist workshop, where many miniature manuscripts and single page miniature albums were produced on natural sciences, history, topography, astronomy and similar subjects, the depictions of literary works mostly started from the last quarter of the 15th century until the end of the 16th century. It is known that there was more than one copy of "Kelile and Dimne" produced during this period [19]. In the same period, love stories similar to "Varka and Gülşah" such as "Ferhat and Şirin" (1530-31), Leyla and Mecnun (17 century) were illustrated. This classical style was developed and maintained throughout the Ottoman period, and did not change much until the westernization movements in the 17th century. The classical style of Ottoman miniature is especially evident in the "Surnames" about weddings and religious holiday ceremonies. In Surnames, it is seen that Ottoman

miniature artists were very good observers and tried to describe what they saw meticulously and in the finest details. In this respect, surnames have an important documentary quality in terms of historical research. İpşiroğlu argued that this feature, which is not seen in the eastern Islamic states, emerged under the influence of the West. But unlike the West, the Ottomans tend to look at the world through religion. They perceive the world as merely an image in its temporality. Therefore, elements specific to Renaissance art such as depth of field, perspective, anatomy, and ratio are not found in the Ottoman miniature. In this respect, Ottoman miniature shows an art quality that is essentially connected to the Middle Ages [15]. The process of evolution of Turkish miniature art into an uninterrupted tradition started from the Seljuk period in the 13th century and continued until the westernization movements during the collapse of the Ottoman Empire. During this period, miniature production developed in workshops or miniaturists, largely under the patronage of the palace and its surroundings. The emergence of western influence in Turkish painting became possible in parallel with the developments in the palace and its surroundings.

The westernization movements that took place during the decline and collapse of the Ottoman Empire in the 17th century brought about a departure and break from the miniature or depiction tradition. In this process, the emergence of album paintings consisting of single and group portraits was followed by western style canvas painting and oil painting techniques [14]. The works made in Istanbul by European painters who came to Istanbul with foreign ambassadors constitute the basic motivation of this change in Ottoman miniature art. With the interest in large-scale oil portraits of the sultans in the second half of the 18th century, features specific to western painting such as perspective and depth of field began to appear in Ottoman depiction art. Then, it was seen that the Ottoman miniature was stripped of its traditional identity and abandoned over time. The sultan portraits painted on canvas by Refail and Kapıdağlı Konstantin, who entered the service of the Ottoman palace in this period, are the first examples of this change [19].

3. Early Examples and the Status of Turkish Comics

It is interesting that the tradition of miniatures, in which writing and text are traditionally used together, has not influenced the history of Turkish comics. The main reason for this situation can be explained by the impact of the westernization movements, which started in the 17th and 18th centuries and gained momentum during the Tulip period (1703-1730), on the Turkish artistic tradition. Ottoman miniature, which lost its traditional identity starting from the

late 18th century, was replaced by western-style wall and canvas painting. In this context, it is seen that there is a break from the miniature tradition, which can be a source and an example for the creation of a unique style in Turkish comics. Therefore, it is not possible to argue that there is a direct connection between miniatures and comics based on tradition. On the other hand, the literature on comics has not reached a clear conclusion on determining the starting point of comic book history. The evolution process between the origins of the comic book and the emergence of the first comic book example is full of uncertainties. For example, "The Tortures of Saint Erasmus", one of the frequently shared examples printed with woodblock printing, supports the idea that the aesthetics of comics did not change much for five centuries, that is, until the creation of the modern comic book form [20]. In "The Tortures of Saint Erasmus", the tortures applied to Saint Erasmus are shown through consecutive picture frames. These frames, which do not contain written text, are distinguished from the visual narrative examples of the period by their sequential narration. In this context, it is an important example in the process towards the comic book structure. But it is impossible to defend that it is a comic book.



Figure 3

Sharing these and similar examples is important in terms of revealing the similarities between the Turkish visual depiction tradition and the comic book form. It is known that there were many examples that were considered important for the history of comics in both Europe and the Far East during this period.

Historiography focusing on the American comic book has associated the birth of the comic book with the popularity of daily newspapers and Sunday supplements in the USA. Therefore, it has been argued that the first comic book was "The Yellow Kid". On the other hand, the number of researchers who refer to Egyptian hieroglyphs or Trajan's Column cannot be underestimated. It is possible that all of the examples mentioned, from medieval codices to Ottoman miniatures, can be associated with the emergence of the comic book genre. It is logical that this thesis is defended in order to determine a starting point, because it is not possible for any species to appear suddenly. Therefore, the process of evolution between origins and the emergence of definition should be evaluated as a process. The tradition of telling stories through images existed long before the emergence of modern comics, and this example, including the Turkish miniature tradition, led to the emergence of modern comics. However, the emergence of the modern comic book was largely initiated by caricatures and satirical publications that began to be published in the 18th century. This thesis appears to be particularly linked to William Hogarth's engravings. The first real comic books are Rodophe Töpffer's albums published in the first half of the 19th century [7].

Artists such as William Hogarth (1697-1764) in England and Katsushika Hokusai (1760-1849) in Japan created sequential stories with various printing methods. One of the most important examples is William Hogarth's "A Harlot's Progress". It is seen that the complexity of the visual language of the story increases in William Hogarth. In addition to the development of printing techniques, Hogarth's mastery in illustration makes this work, in which Hogarth tells the story of a prostitute, unique. These engravings, which consist of six picture frames in total, show the characteristics of an uninterrupted comic strip when lined up consecutively. "A Harlot's Progress", published in 1731, tells a social theme, the story of a woman who emigrates to London and tries to survive by working as a prostitute. As seen from an oil painting and engraving artist, he describes this theme in extremely detailed and satirical language as expected from a cartoonist. These stories are also the first works to be exhibited serially in a gallery setting [20].



Figure 4

The main feature that distinguishes traditional narrative examples in which text and image are used together, such as medieval manuscripts or Ottoman miniatures, from comics; The text and the image tell the story together by dividing the work. In pre-Hogarth examples, traditionally either images illustrate the text or the text explains what is in the image. It is necessary to establish a chronology between scenes that allows the narrative to be understood. The first major author of such stories was William Hogarth (1697-1764) [7]. However, the majority of researchers agree that Töpffer created the first real comic books. This includes Carpentiero.

This thesis has mostly been defended through Töpffer's strange, childlike, spontaneous and cartoonish style, and the use of consecutive panels appropriate to the modern comic book format. But Töpffer's situation is a little different because, unlike Hogarth, Töpffer is aware that he is creating a new genre. This idea was also shared by Goethe. In his own words, Töpffer described his creation as follows: This little book is of a mixed nature. It is composed of a series of autographed line drawings. Each of these drawings is accompanied by one or two lines of text. The drawings, without this text, would only be obscure in meaning; the text, without the drawings would mean nothing. The whole constitutes a sort of novel, all the more original in that it does not only in the character of the situation, but also in the briskness of the drawing itself—in other words, he calls for a new graphic aesthetic [17].

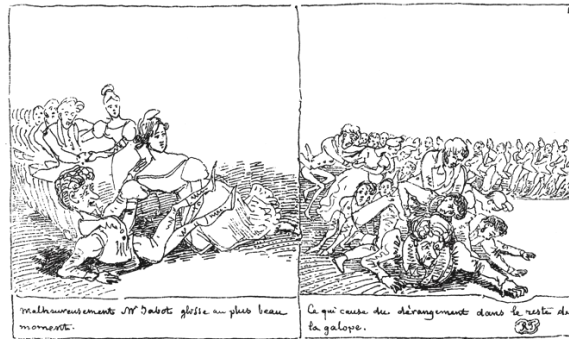


Figure 5

These modest statements of Töpffer essentially include the first definition of the comic book genre. The necessity for image and text to come together and tell a story together is clearly stated in this statement, which distinguishes the modern comic book from its predecessors in this respect.

As a successor, in 1845, Amédée de Noé (Cham) redrawn Töpffer's "Cryptogame" and this work was published in L'Illustration. Thus, comics appeared in periodicals for the first time. "Cryptogame", published by Töpffer in fascicles, is not suitable for the periodical format. Cham redesigned the fascicles in a suitable format, which inspired Cham's later works [17]. This innovation has been described as an important turning point in the history of comics. The source of the discussions on "The Yellow Kid", one of the most important works in comic book history, is also associated with this innovation. "The Yellow Kid" appeared in only a few frames in the Sunday issue of the New York World newspaper, owned by Pulitzer, in 1894. Texts with social content were written on the yellow boy's shirt. Most of the texts with social content were written on his yellow shirt, thus turning it into a speech bubble [4].



Figure 6

Although it originally only appeared in the Sunday edition, "The Yellow Kid" is recorded in history as the first instance of the comic appearing in a daily newspaper. In this respect, the difference between "Cryptogame" and "The Yellow Kid" is as much as the difference between a periodical and a daily newspaper. But it is a fact that this work is the first periodical comic book series published in the USA, and Pulitzer's genius turned comics into a main element that increased the circulation of newspapers, a popular narrative genre. After a while, comics will begin to appear in all daily newspapers in the USA, and comics will become an unchanging element of daily newspapers and periodicals. The emergence of comic books within the borders of the Ottoman Empire took place after a while through periodicals and newspapers.

It is necessary to mention these first examples when discussing the history of Turkish comics, because although it has a deep-rooted tradition of visual narrative, Turkish comics are more related to "The Yellow Kid" than to miniatures. More than one reason can be listed that creates this situation. The fact that the press sector was not developed and that daily newspapers and periodicals were not limited to Istanbul and its surroundings, as in the miniature, kept these sectors largely under the control of the palace, selectively and within a narrow framework. Therefore, there was no press that spread throughout the Ottoman geography and could reach the masses. Cartoons and comics entered the country primarily from western sources, and the local initiatives that emerged were largely carried out by non-Muslim minorities. The first humor newspaper published during the Ottoman period was "Meğû", published in Armenian by Hovsep Vartanyan in 1856. The first cartoon was published in Arif Arifaki's "Istanbul" newspaper in 1867. In addition to the "Terakki" newspaper, which was published specifically for women by Ali Raşid and Filip Efendi in 1868, a humorous supplement was published in 1870 [16]. "On 23 May 1286 (1869 AD), the Ottoman press had its first humor magazine: 246 years late from France, the main source of the cultural existence of our Empire!... [18]. This magazine is the first independently published Turkish humor magazine "Diyogen". As can be understood from Kutay's statements, the birth of the first Turkish humor magazine was delayed by 246 years, which refers to the invention of the printing press. This situation has been seen as one of the most important reasons why Turkish humor and comics cannot develop. "Diogenes" was published in Istanbul by Teodor Kasap, an Ottoman citizen of Greek origin. The Turkish edition of Diogenes, which was previously published in Greek, Armenian and French, was published on 25 November 1870. As a result of the unexpected interest Diogenes

published weekly, its edition was increased to three times a week. When it started its publication life, no cartoons were included and its content consisted entirely of written texts. The first cartoon was included in the 120th issue (1871). The magazine, which was closed in its 184th issue, was not only the first Turkish humor magazine, but also went down in history as the first humor magazine to be closed [16].

The following sentences, written by Teodor Kasap, provide a summary of this period of the Ottoman Empire in terms of press, humor and comics. "The real skill is to explain things that make you cry by making you smile. There is a method to this, too: Let us not deny the time we had to take from the Franks, not only the printing machines but also the path to be followed in printing, let us not see ourselves in the giant mirror, let us try to catch up, and when we reach their level, we will follow our own unique path. Let's find it" [18]. Kasap's statements emphasize the inadequacy of technical and theoretical knowledge regarding printing-publishing beyond printing technology. This situation also means that there is no experience to produce cartoons and comics. The dependence of early Turkish comics on western sources and the lack of a relationship between the miniature tradition and Turkish comics can be explained in this way. *II.*, which is considered to be the first comic book published in the Turkish press. The comic narratives published in *Servetifünun* under the title "Mündericatsız Hikayeler (Stories without Mündericat)" during the reign of Abdulhamit are also of European origin [8]. This work dates back to World War II, when the printing and publishing industry was relatively free. It emerged during the Constitutional Monarchy period. In this period, when censorship was quite limited, printing houses began to be established one after another and the number of newspapers and magazines began to increase [16]. It will be seen that many magazines of European origin were published in the Ottoman press during this period, and among these examples there are also publications of US origin. Starting from 1895, American newspapers included comic books and colorful Sunday supplements were published [13]. The importance of "The Yellow Kid" for Turkish comics has been emphasized in this context because the emergence of comics in Turkish culture follows a parallel course to the American comics.

It was necessary to wait for the Republican period for comics to develop beyond Istanbul and spread to the masses, and for the first local comics to emerge. With the proclamation of the Republic, the revolutions aimed at building a modern nation-state made their impact felt in the development of comic books,

as in all areas related to cultural production. In this context, it is argued that the first example of a local Turkish comic book emerged in the 1930s.

4. From Empire to Republic: Comics as a Medium of Cultural Creation

The first comic book experiments in the Republic of Turkey were made based on western examples, without relying on any painting tradition. During the Republic period, the sultanate and caliphate were abolished, the ties between Turkey and the Ottoman Empire were severed, and the founding principles of the nation state based on "Turkishness" set the level of exclusive civilizations as the target. Therefore, the miniature tradition, which was about to disappear in the last period of the Ottoman Empire, no longer had the opportunity to serve as a source for the art of the modern Turkish state. Cartoon and illustration of this period developed from western sources, without relying on a local tradition. However, the first example of a domestic comic strip that could be described as a strip cartoon appeared in this period. The stories of the character "Amcabey", published by Cemal Nadir Güler in Son Posta in 1930, are considered the first Turkish comic book example. Amcabey was followed by "Tombul Teyze (Chubby Aunt)" and "Sıska Amca (Skinny Uncle)" created by Ramiz Gökçe [6].



Figure 7

Cemal Nadir Güler's line bears the traces of Cemil Cem, the cartoon artist known as the greatest master of the pre-Republican period and also the publisher of the "Cem" humor magazine. Cem, on the other hand, is largely inspired by foreign artists, especially from the 19th century. He was influenced by the important French illustrator of the century, Caran D'ache. Political issues are not

mentioned in his drawings. The subject of both his cartoons and comic stories is largely about daily life. The most important reason for this attitude is the political pressure environment of the 1930s and 40s. [23].

Starting from this point, the political and ideological environment of the period should be mentioned because, as in all branches of art, cartoons and comics were under strict control. The education system and all cultural activities are structured to serve the purposes of the founding ideology of the Republic. Although the ideology called Kemalism was a "globalizing" movement, the exclusive level of civilizations it wanted to bring Turkey to was referring to the West. He drew the most extreme conclusions possible from this in order to save Turkey from being, in Atatürk's words, the laughing stock of the world. But it also ensured the victory of Anatolia over cosmopolitan Rumelia; The Westernization of the country went hand in hand with the restructuring and revitalization of the "Turkish" culture, which was claimed to be the source of the genius of the "people" against the Ottoman civilization [2]. Therefore, this ideology includes the creation of a nation-state that adopts western values and is based on the element of "Turkishness". Çongur pointed out the decisive influence of magazines, newspapers and books in the process of creating a national identity and stated that national consciousness develops through the common language created by these and similar mass media [9]. In parallel, modern educational institutions were established to provide western-style art education. In 1936, the State Conservatory and then the State Theater were established, and Community Centers, which were established in 1932 and spread throughout the country, were used in order to deliver plays to large masses of people. The principles summarizing the founding ideology of the Republic, the virtues and values of the Turkish nation were conveyed to the public with contents mostly based on Turkish history [1]. All branches of art and mass media are designed to achieve this purpose.

It is seen that the view towards comic books during the Republican period was shaped by the aims of the national education mobilization of the nation state. In this context, it is observed that the educational potential of comics is recognized and interventions are made in this direction. The government itself was involved in press activities during this period. The following article appeared on the cover of the *Gürbüz Türk Çocuğu* Magazine, published by the *Himaye-i Etfal Cemiyeti*, a public institution, in 1926: "It helps the sanitary and educational development of childhood." The society systematically published publications for parents and children and were distributed to the masses by the state. Other examples

published by the Society are: Çocuk (Child), Çocuk Mecmuası (Children's Magazine), Ana Mecmuası (Mother's Magazine), Çocuk ve Yuva (Child and Home), Türk Kadını (Turkish Women), Çocuk Haftası (Children's Week). The education policy of the Republic and the importance given to the education of the Turkish child were embodied in these publications [22]. This and similar children's magazines were distributed to children in educational institutions.

Cemal Nadir Güler's art and the "Amcabey" character emerged in such a political and ideological climate. In order to survive, the cartoonists of the period had to either produce content for periodicals published by the state or stay away from political and ideological themes. For example, the character "Amcabey" was censored and corrected many times on the grounds that he resembled Churchill. On the other hand, he was criticized by some researchers for his western-style clothes. Dalkavuk, another character of Cemal Nadir, was seen as a more native character in cultural terms. The Solomon character is antisemitic at a level that is unacceptable in today's world. This situation can be explained by the political climate of the 1930s and 40s. II. The press of the period specifically targeted Jewish citizens as the reason for the economic difficulties experienced in the years before World War II ([23]. Amcabey, on the other hand, appears as a character who has assumed all the virtues of the Turkish people, while also adopting a western style of clothing in line with the official ideology. "For Republicans, clothing is a sign of those who produce it rather than the person who wears it. Atatürk also established an identity between the abolition of the caliphate and the banning of the fez: "Gentlemen, to ban the fez, which in the minds of the nation is a sign of ignorance, indifference, bigotry, hostility to civilization and progress, and to accept the hat used by the entire civilized world instead, thus, in the minds of the Turkish nation, as in other issues." It is necessary to prove that he will not leave civilized social life" [2]. Of course, when Atatürk says civilized society, he means Western civilization. Despite all these developments, Cemal Nadir Güler became one of the rare successful cartoonists of his period in daily newspaper cartoons. According to Selçuk: "Newspaper cartooning started with him and continued with him. As a result of this habit he created after his untimely death, newspapers felt obliged to open their columns to young humor cartoonists" [21].

In this period, which included the pioneers of Turkish comics, the first important turning point for Turkish comics was the publication of Çocuk Sesi magazine in 1928. With Çocuk Sesi, American traces began to become evident in Turkish comics. Although the majority of the works published in these magazines

are not native, they have been subjected to interventions to give a sense of locality. Disney series, which we know from cinema, were frequently published in these magazines [5].

The most important feature that distinguishes *Çocuk Sesi* from its predecessors is the density of the comic book content. “*Çocuk Sesi*” has devoted its entire two middle pages to “*Gökler Hakimi Baytekin* (Baytekin, the Judge of the Skies)” (Flash Gordon). The *Çocuk Sesi* attracted a lot of attention with this aspect and opened the door for its successors. Following *Çocuk Sesi*, *Afacan* magazine was published in 1934. *Afacan*'s content includes American series such as Brick Bradford's *On the Isles Beyond the Sea* adventure, Hal Foster's "Tarzan" and Alex Raymond's "Avcı Baytekin (Jungle Jim)" [12].



Figure 8

Flash Gordon, one of the first examples of foreign comics, was met with great interest. The fact that domestic comic book production was very limited during the Republic period made it inevitable for American-based series to enter the country. With an anti-American attitude, the authoritarian regimes of the 1930s intervened to localize American comic books. In Turkey, names and contents were intervened and even characters were rearranged [5]. It seems that in this early phase of Turkish comics, although there was domestic production, dependence on imported production continued. However, the fundamental element that characterizes the period is the efforts to spread the basic values of

the republic to the entire society. It is seen that both public and private enterprises published in this direction until the 1950s, and comic book production was shaped in this direction. Cantek summarizes this period as follows: "In transitional societies in the process of transformation from traditional to modern, there is a harsh conflict between the traditional and the newly developing relationships and forms. If we look at the cultural policies whose momentum became more evident in the thirties, we can see that a new language, culture and history was created with the formulation of modernity" [6].

5. Transition to Multi-Party Life and New Trends in Turkish Comics

The comics of the founding period of the Republic and the Turkish comics after the transition to multi-party life in 1950 show two different character traits. In the 1950 general elections, the Democratic Party came to power with an overwhelming majority, and the party that founded the republic lost power. Westernization movements that started during the Republic period accelerated when Turkey became a member of NATO in 1952. II. The statist economic model implemented before World War II entered the globalization trend after the war. Post-war globalization does not include versatility specific to the period. While the industrialized states of Europe and the Far East are trying to compensate for the destruction caused by the war, the world's states have become largely dependent on US industry. Therefore, it is seen that globalization is largely one-sided. In the Far East, Japan is being restructured with the support of the USA. It can be said that this structuring works in every field, including comic books. During this period, the containers sent to Japan included American comic books, as well as food and industrial products. Similarly, within the scope of the Marshall Plan, gratuitous support was provided to countries close to the USSR, especially Greece and Turkey, against the threat of communism. From the establishment of the Republic until 1950, policies that prioritized keeping the peasant population in the village were followed and Village Institutes were established for this purpose. After 1950, in parallel with the revived industrial production, the village was opened to the city. The demographic change between rural and urban areas has led to the emergence of new problems based on identity. The basis of these problems is the cultural conflict between the conservative and traditionalist or fatalistic rural population, which cannot reconcile itself with the founding principles, and the more secular and westernizing urban population, since the foundation of the republic. The feeling that their national and spiritual values are under attack is common among uneducated young people who migrate from

villages to cities. American expansionism coming from the west and at the same time the threat of communism coming from the east threaten national values. Ironically, this situation fed both the right and the left, and Turkish nationalism began to rise. These masses are excluded from the city center or deliberately stay away from it. Thus, village-cities or suburbs with a unique culture that were neither rural nor urban were formed on the periphery of the modern city.

In the 1950s and 60s, Turkish comics produced works shaped by the needs of a new type of culture formed in villages and cities, as well as examples dealing with social and political issues. In the suburbs, where access to television or radio is very limited, comic books are one of the most consumed mass media. In addition to the localized American series, Italian western comics have begun to attract great attention. So much so that there are sayings that Turks learned the Wild West from Italians. Magazines such as Tom Miks (Capitan Miki) and Texas (Grande Blak) reached large circulations [8]. Italian western series also had positive results in terms of domestic production. The spread and popularity of comic books in Turkey is thanks to Italian series. The rise of nationalism and the historical-adventure genre inspired nationalist Turkish adventures. Their commercial success encouraged local publishers, and one of the most important adventure series of Turkish comics emerged in this period: Karaoğlan.

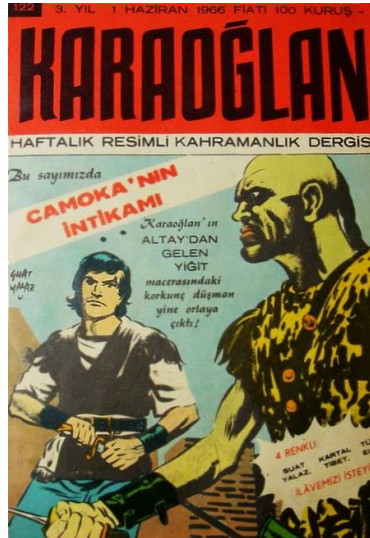


Figure 9

Karaoğlan, a product of a nationalist line adhering to the Kemalist ideology, was first published in 1963. Karaoğlan, the hero of the series about pre-Islamic Central Asian Turkish history, is a Uyghur Turkish youth. Karaoğlan refers to an unknown history, to the homeland of the Turks, namely Central Asia, with its mysterious, pure and endless steppes. As Afet İnan said, "The highest and first civilized tribe of humanity are the Turks, whose homeland is the Altai Mountains and Central Asia. Turkish is civilization! Turkish is history." Suat Yalaz, who made his debut with Kaan and Karaoğlan years later (1932), also had the impression of that period in his mind. , there is the stamp of that understanding [6]. The number of historical and adventure comics following Karaoğlan is too many to count. Hun Turk "Tarkan", published in 1967, is one of the important series. In addition to the Central Asian, Atatürkist-nationalist line, Ottoman nationalist and conservative lines also began to appear in this period. Fatih's bouncer Kara Murat and Malkoçoğlu are a few examples produced in this period.

Thus, the difference based on national identity between the multi-party period and the founding period of the Republic can be observed in all narrative types. Atatürkist-nationalist ideology chose historical figures such as Atilla and Timur as the "ancestors of the Turks", and theater plays were performed in this context [9]. On the other hand, Küçük Ağa, the novel of Tarık Buğra, known for his nationalist-conservative identity, in 1963, dealt with the War of Independence with a Turkish-Islamic focus. He praised the Ottomans, who were the opponents of the Kemalist ideology [25]. The most productive periods of comics, such as World War 2 and the years after, intersect with periods when nationalism was on the rise and national identity was felt under threat. The "nationalist superheroes" that constituted the general trend of American comics during World War 2 are almost the embodiment of the nation-state [11]. The popularity of nationalist stories in Turkish comics continued until the 1980s. Events such as the Korean War in the 1950s, the Cold War and the 1974 Cyprus Peace Operation supported this trend. It lasted until the military coup in 1980 as a result of the left-right conflicts in the 1970s. The mass depoliticization process that started with the coup years also affected comic books, and as in the founding years of the republic, series about comedy and daily events rather than political content were published. "Gırgır" magazine, which started to be published in 1973, is the most important periodical of this period. So much so that Gırgır was published until 1989, including the coup years, and became the longest-running publication in the history of Turkish comics. During its publication life, 68 comic book series were published in Gırgır [10]. Throughout its many years of publication, Gırgır

served as a school in a culture where there was no comic book education. Many cartoonists published their first works in *Girgir* magazine. With a circulation of over half a million, it has become one of the best-selling publications not only in Turkey but also around the world. "From 1972 to 1989, under the management of Oğuz Aral, it became an important element of humor literature and influenced the magazines that came after it in terms of both content and form" [10].



Figure 10

The 1990s were a period in which horror, violence, comedy and sexuality content gained prominence in Turkish comics. This period, when political, social or satirical content remained in the background, was a period when erotic publications became widespread in the media industry. In terms of comic books, parallel to the world in general, there has been an unproductive and stagnant period. In magazines such as *L-Manyak* and *Leman* published in this period, the effort to make people laugh through violence and sexuality is at the level of insatiability. "Besides; The desire to escape from crowds, disbelief in political affiliations, distrust of people, indifference to money can be easily perceived in these publications" [6].

Conclusion(s)

The reasons why Turkish comics have not been able to create a traditional identity despite having a visual narrative tradition spanning centuries can be defined as the Turks' indifference to the developments in the West since the Ottoman period. The Ottoman geography experienced neither the "Enlightenment" nor the "Industrial Revolution". The arrival of printing technology to the country was delayed by approximately 250 years. Therefore, science, technology, media, mass education and communication are much newer concepts for the Ottoman Empire compared to western countries. These innovations, which started during the rise of the Ottoman Empire, were not needed and remained indifferent. Even though the dominance of the West was accepted during the collapse period and efforts were made to adapt, it was too late. As a result of this period, the Ottoman Empire disappeared and the modern Republic of Türkiye was established. Starting from the years of its establishment until the 1950s, the identity of the nation-state was tried to be built and all educational and cultural activities were designed for this purpose. Like all narrative genres, comics have been shaped in accordance with this purpose. In this context, the process is also compatible with the world comics history. After 1950, the change of power was followed by demographic change, which was followed by socio-cultural change.

It is possible to observe the production and transformation of culture through the notable examples of comics produced from the establishment of the Republic until the 2000s. Although the reform movements experienced during the Ottoman period were replaced by republican revolutions in the history of Turkey, the results of these revolutions imposed from the center could not spread to the grassroots. As a result, in the first multi-party general election, the Atatürkist government was replaced by the conservative Democrat party. Comics, which had developed in one direction under the pressure of the government until this period, took on a conservative-nationalist character after 1950. The development process guided by ideology, political pressure and commercial concerns has made it impossible to discuss the comics genre at an artistic level. The main driver of the development of comics in the USA is commercial interest. In Europe, they are mostly artistic and cultural concerns. Turkish comics, which lack both concerns, could not be considered as a discipline, were not developed by educational processes, and therefore could not create an original tradition. In this context, periodic concerns and functionality have guided the history of Turkish comics. On the other hand, it has not been accepted as a cultural value. While

comics have been treated as a professional discipline in Western schools since the 1950s, there is no institution providing comics education even in today's Turkey. Therefore, comic book production in Turkey is limited to individual and feeble efforts. The popularity that comics have regained since the 2000s as a result of their relationship with cinema, mobile devices and the development of the internet both support individual production and enable the emergence of new forms. Designing an educational process and cultural environment to exist in the comics universe not only as a consumer but also as a producer will determine the future of Turkish comics.

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chapter 2

The Representation of Mythologies as Vessels of Cultural Memory in Popular Narratives: Turkish Mythology in *Wayfarer: Nomadic Realms* FRP Game and *Turkish Mythology Atlas* Comic as a Transmedia Adaptation

Selin SÜAR¹

Summary

Mythology encompasses the classic and modern aspects of civilization, recognized as a sacred and authentic tale that is systematically created by the lives of its many segments. Mythology, defined as a collective of myths, exists in all contemporary expressions and activities, functioning as an element that resides beyond collective consciousness while simultaneously perpetuating itself as a process. Comic books have developed a complex structure in recent years, serving not only as media products with narrative frameworks and graphic arrangements but also as artistic works that reflect creativity. Comic books, established within the visual-oral cultural sphere as popular narratives, are intricately linked to the culture, lifestyle, history, and prevailing ideology of their respective societies. They serve as a wellspring of inspiration for digital games, which represent an interactive medium, and both media forms mutually influence one another. The work of illustrator and comic book artist Bartu Bölükbaşı, titled *Turkish Mythology Atlas*, was analyzed comparatively with global mythologies and visually interpreted by him. It has been adapted to the DND 5e-based tabletop role-playing game system known as *Wayfarer: Nomadic Realms*. The research aims to ascertain, via content analysis, the incorporation of epics, narratives, rituals, and characters deemed sacred in Turkish mythology—serving

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as vessels of the collective cultural memory of the Turkish populace—within the transmedia of the Turkish Mythology Atlas Comic and the Wayfarer: Nomadic Realms FRP Game, which were purposefully selected for this study.

Keywords: Cultural memory, transmedia, Turkish mythology, comic, FRP

1. Introduction

This article aims to explain how epics, storylines, rites, and characters revered in Turkish mythology, as carriers of Turkish societies' cultural memory, are incorporated into transmedia, and thus contributes to the debate over the definition and content of the concept commonly known as myth. Myth, which expresses complex processes and entities in the creation and maintenance of culture, is based on the written and oral culture of the societies to which they belong, and while attempting to explain the unknown, it also provides a road map to the individual who is a member of society. Myth has four primary roles that stand out: Mystical (metaphysical), cosmological, sociological, and psychological functions (Campbell & Moyers, 2009). (1) The mystical (metaphysical) role instills in the individual a sense of appreciation and gratitude for the universe's enigmatic dimension; (2) The cosmological role provides a perspective on the universe that connects local knowledge and individual experience to the metaphysical dimension. (3) The sociological role validates and supports society's standards and guarantees that the individual acts accordingly. (4) The psychological role serves to lead each individual through the phases of life within the setting of that culture.

The mystical aspect of myth, which Campbell calls 'the most obvious of functions', is that a suitable mythology allows a person to experience admiration and subjection to the mystery of existence, and the universe. The imagery and symbols of a living tale convey and elicit this emotion. The mystical role establishes a connection with the sacred and facilitates conversation with humans about meaning and life. The cosmological role of myth is to create the functioning and image of the universe. To cope with all of the unexplainables in the vastness of the cosmos, the person crafts tale forms through art, belief, culture, lifestyle, and storytelling, aided by mythology (Campbell & Moyers, 2009: 33). People who invent legends concerning dualities such as creation, the origin of Gods, humans, animals, and plants, death-life, good-evil, and this world-the next world use these to form their knowledge of the world. The individual shapes his perception and interpretation of various occurrences in accordance with the rules of his originating community. In summation, an individual's worldview is

constructed from the mythology prevalent in their society, while simultaneously, each new individual is integrated into and molded by society through this mythology. Campbell and Moyers (2009: 53) asserts that the final step pertains to the psychological role, which is the most significant of the three functions. They furnish the impetus required to mold the individual in alignment with the objectives and principles of a specific organization. These myths elucidate numerous universal concepts, including good and evil, motherhood, fatherhood, love, passion, loyalty, sacrifice, mortality, revenge, and tolerance. They assist individuals in addressing questions such as identity, the nature of happiness, methods for improved living, and the pursuit of virtue, thereby guiding them toward appropriate actions.

Likewise, comic books have evolved into the mythology of our era, encompassing superheroes, archetypes, culture, and lifestyles. Similar to other mythologies, comic book characters and their story frameworks mirror the social and cultural phenomena of our era. Similar to mythological narratives, comic book protagonists represent idealized individuals, while antagonists illustrate societal perceptions of malevolence. In this regard, contemporary comic books serve as a significant medium that facilitates the dissemination of ancient mythology. Modern mythology encompasses various cultural components, including comics. In certain pertinent instances, comics serve as vessels of legendary discourse through their settings, characters, and narratives (Başakçioğlu, 2023: 155). Both serve as robust exemplars that influence individual identity, encompassing social, economic, anthropological, intellectual, and political elements. Numerous instances from high arts, including classical literature, painting, sculpture, and architecture, were produced by repeating or reinterpreting established mythology.

Comic books, a twentieth-century embodiment of popular literature, represent a literary amalgamation of human experience and tradition, incorporating current tales such as films, news, and digital games. Contemporary art and media frequently utilize information derived from the Judeo-Christian and Greco-Roman traditions of the West and disseminate it globally. These items can readily impact audiences due to their clarity and recognizability. The integration of motifs and references into the narrative and characters, which may include innovative adaptations of familiar folk tales, creates an opportunity for the reader to engage with the work. Individuals are assigned identity based on their robust sense of belonging to a group, shaped by shared ideas and historical context in this region.

The *Turkish Mythology Atlas* developed using comparative mythologies and historical data, along with the transmedia adaptation *Wayfarer: Nomadic Realms* FRP game, convey the narratives of Turkish oral culture, serving as vessels of cultural memory, into popular culture. The content analysis will seek to identify the events and characters from the Turkish mythical realm depicted in these transmedia adaptations and the manner of their presentation.

2. Mythology and Comics as a Prominent Narrative Form

Discussions regarding the essence of mythology have persisted for centuries. The term mythology originates from the amalgamation of the Greek words 'mythos' and 'logos'. The terms mythos and logos were employed in Ancient Greek civilization to denote the notion of word. The initial definitions in the history of philosophy favor the concept of 'logos' above 'mythos' to elucidate the distinction between the two notions (Beer, 2006: 56). This contrast arises because mythos is primarily linked to religious content, whereas logos embodies a form of rationalism (Yanık, 2020: 271). The conceptual frameworks of Greek natural philosophers predominantly derive from Homer and Hesiod, whose writings might be seen as shamanic creations inspired by the divine (Bölükbaşı, 2023: 13). Prior to the emergence of Ionian scientific thought during the Homeric-Hesiodic era, the notion of mythos did not encompass superhuman heroes, events, or fantastical fictions. Birdal Akar (2019: 39) asserts that the necessity to address the term mythos, as it is currently comprehended, was first recognized by Greek philosophers and authors two centuries after Homer and Hesiod, leading to its predominant usage in this context.

Şefik Can (2020: 18-19) asserts that Euhemerus, a writer from the Hellenistic period, was the first to contemplate the transformation of stories and the nature of mythology. Euhemerus asserts that mythological occurrences fundamentally mirror historical realities. He asserted that legendary figures are sovereigns, military leaders, or renowned individuals who govern, and hence, they are venerated (Winiarczyk, 2013: 30). Philosophers influenced by Euhemerus, who asserted that mythological narratives were representations of historical events and that deities were deified individuals, commenced analyzing myths through moral and religious lenses. In Antiquity, Homer's work was regarded as a historical document. The works extensively reference the rules of ancient Greek culture, social life, and geography (Campbell, 1995: 627; Berry, 2023: 14). St. Thomas Aquinas posited that mythological themes, regarded as the sacred foundation of major religions, are universal and not confined to a single tradition.

He asserted that the religious discourse of humanity is collective, with the influence of myths permeating all aspects of life, leading to discussions of their similarities.

Nevertheless, the endeavor to establish a scientific framework for the study of mythology only crystallized by the 19th century, as the available data was extensive, dispersed, and often ambiguous. Campbell (1995: 614) asserts that despite the proliferation of knowledge across various research domains, such as the Classical era, Eastern culture, comparative philology, folklore, Egyptian civilization, biblical criticism, and anthropology, a comprehensive analysis remained unattainable due to the conflicting theories and ideas prevalent in the 19th century.

In the 19th century, Max Muller in England, Ernst Cassirer in Germany, and Michel Breal in France asserted that myths were grounded in language within the context of linguistic research. Language, like religion, myth, and art, functions as a component of the symbolic cosmos and is interrelated with them (Wilkins, 1901: 127; Cassirer, 1946: 2-3). This bond is a functional bond that advances by symbolic expression. Artistic tales, integral to the symbolic realm, are intricately connected to mythology. Mythology has significantly influenced artistic creation, persisting through the ages in conjunction with architecture, visual arts, music, and performing arts, thereby impacting the aesthetic and cultural experiences of humanity (Özhancı, 2022: 517). Comics are a prominent cultural artifact primarily created for the entertainment of readers, though they may also serve educational or propagandistic functions.

They have been a significant aspect of cultural life since the late 19th century, when the initial examples emerged (Giray & Yıldız, 2017: 734). Roger Sabin (1996:11) identifies the inception of comics in English illustrations from the 1600s. He contends that the works and advertising created to chronicle royal events prompted the comic book to adopt a narrative structure. Eren Kir (2021:65) asserts that the Englishman William Hogarth (1697-1764) was the progenitor of comics and cartoons, with his seminal work, *The Rake Progress and Marriage A-laMode*, serving as a critique of a corrupt society. Paul Buhle (2007: 316) highlights the concurrent emergence of oral history and graphic history, noting that the initial modern comic books originated during the Great Depression, alongside WPA Federal Writers' Project slave narratives and recordings of southern folkloric music. The illustrated work *Historie de M. Vieux Bois (Adventures of Obadiah Oldbuck)*, authored by Swiss Rodolphe Töpffer (1799-1846), is regarded as the inaugural comic book in numerous references

(Kunzle, 2007: 3; Leuner, 2015: 200). This work, initially published in French in 1837 as *Les Amours de M. Vieux Bois*, is based on the amorous adventures of the hero. The book comprises over forty pages and 188 illustrations, detailing the many tragedies encountered by the hero both on land and at sea (Kunzle, 2007: 54-55). The inaugural cartoon journal, *La Caricature*, was released in France in 1831 (Cuno, 1994: 347- 348). Eren Kır (2021:65) asserts that R. F. Outcalt initiated the initial departure from caricature in America during the 1890s. *Yellow Kid*, created by Outcalt, is published every Sunday in comic strip format, which lasts for 45 frames and the joke is usually exploded in the last frame. The animation closely resembles contemporary comics regarding the utilization of speech bubbles in the strips. Additionally, *Blondie* (in Türkiye known as *Fatosh*), *Gasoline Alley*, and *Little Orphan Annie*, among others. Numerous characters are unveiled, and publishers such as Patterson, in contrast to others, meticulously determined the concept and thoughtfully evaluated the content when selecting the writer and artist (Tucker, 2004: 79; Harvey, 2014: 68-69; Kır, 2021: 65). Consequently, *The Gumps* (1917), *Gasoline Alley* (1919), *Winnie Winkle* (1920), *Moon Mullins* (1923), *Little Orphan Annie* (1924), *Dick Tracy* (1931), *Smilin' Jack* (1933), and *Terry and the Pirates* (1934) gained popularity throughout numerous countries between the 1920s and 1930s.

The 1930s were also an important turning point with the first comic book magazine of the period, *Funnies on Parade*, which was given as a promotion by the Procter & Gamble Company, reaching high popularity. The unique structure facilitated the rapid publication of multiple comic book magazines, featuring savior superheroes and their astounding adventures (Başakcioğlu, 2023: 168). *Superman* debuted in *Detective Comics* magazine in 1938 and was perceived by the public as a savior and emblem of defiance (Clanton, 2017: 35; Canteke, 2014: 24; Başakcioğlu, 2023: 164). Following Superman, several superheroes emerged in the comic book medium, which evolved during the wartime era, notably *Batman*, *Sub-Mariner*, and *The Human Torch*.

Translated comic narratives in the form of cartoons have been published in our country since the latter time of the Ottoman Empire. The inaugural cartoon in the Ottoman Empire was included in *Diyogen*, the first independent humor magazine, established in 1871 by Teodor Kasap. Kasap expanded the realm of cartoons by launching an additional comedy magazine titled *Hayal*, available in five languages: Turkish, French, Greek, Armenian, and Bulgarian (Subaşı & Çaylı, 2017: 94). Throughout the Ottoman era, the satirical press was predominantly controlled by the opposition, which critiqued the government's internal and

foreign policies and practices via cartoons. The inaugural local cartoon was Cemal Nadir's *Amcabey* (1930). In the 1930s, children's periodicals included the inaugural foreign comics, including Alex Raymond's *Flash Gordon* (in Türkiye known as Baytekin) and *Jungle Jim* (in Türkiye known as Bayçetin and Hunter Baytekin) (Sarıkaya, 2021: 86). The period from 1923 to 1946 is regarded as the era that established the quality of contemporary cartoons. Nonetheless, Adem Kartal et al. (2023: 3572) assert that Aziz Nesin believed there was nearly an absence of political comedy and free thought prior to the publication of humor magazine *Markopasha* (Markopaşa). Levent Cantek (2014:24) asserts that the most popular comics originated from two foreign comics designed for youngsters. These are *Texas and Tommiks*. Cantek (2014:24) asserts that the term Texas-Tommiks has long been associated with comic books in our nation, and that Italian Western publications, which have garnered significant popularity since the mid-fifties, have influenced our comics both positively and badly. Cantek (2014: 24) asserts that for numerous years, publications like Texas-Tommiks were favored, both in content and format; nonetheless, until the mid-1950s, cowboy narratives, commonly referred to as spaghetti westerns, and historical comic books were concurrently published and enjoyed by readers.

The mass media attained a significant milestone in Turkey during the 1950s. *Hürriyet*, the daily founded by Sedat Simavi, garnered acclaim from a broad spectrum of society for its extensive use of images and its coverage of diverse themes. Similarly, the *Milliyet* and *Yeni Sabah* newspapers featured cartoons and comics in the margins of their pages for entertainment purposes (Özkartal & Sarıca, 2020: 5). During this period, the intermediate generation of artists who initially engaged in caricature and then transitioned to comics emerged. The following illustrators are notable: Selma Emiroğlu, Semih Balcıoğlu, Turhan Selçuk, Nehar Tüblek, Eflatun Nuri, Altan Erbulak, Ali Ulvi, Bedri Koraman, Ferruh Doğan, Yalçın Tüzecan, Yalçın Çetin, Tonguç Yaşar, Oğuz Aral, Mustafa Eremektar, and Suat Yalaz. By the late 1950s, domestic comics had a surge in popularity; Ratip Tahir Burak's *Forty Martyrs Castle* and his subsequent illustration of Abdullah Ziya Kozanoğlu's novel *Kızıltuğ* in the *Akşam* newspaper in 1960 garnered significant attention. Simultaneously, Suat Yalaz, who generated significant attention with *Karaoğlan* in 1963, spearheaded the advancement of the local comic book industry. *Karaoğlan*'s adventures commenced publication as a weekly comic magazine on April 1, 1963 (Baykuş, 2016: 64; Basakcioğlu, 2023: 281). The exploits of *Malkoçoğlu*, son of Balibey, inspired by a purported historical figure from the 16th century, are notable examples of historical comics.

The 1960s was the zenith of historical comics. Following the decline of *Karaoğlan and Malkoçoğlu's* prominence, a new hero arose in Turkish history. Sezgin Burak, who fused historical narratives with mythology, introduced *Tarkan*, which ran from 1967 to 1978, showcasing distinct adventures in each installment and earning societal acclaim (Başakcioğlu, 2023: 171). The interplay between comics and cinema persisted throughout the evolution of comics, with superhero and adventure narratives frequently adapted for movies. Cinema and comics, which have exhibited enduring fidelity, are two artistic domains that continually affect one another and share tales (Cantek, 2014: 43). The connection between art and mythology can be examined from two distinct perspectives. The initial aspect is the direct correlation between mythology and artistic creations. Nearly all artwork from the early eras possess a legendary dimension. Secondly, mythical characters can provide the substance or context of a work of art. Consequently, the object's material is constituted by a mythological comprehension or a mythical entity.

The proximity between comics and mythology demonstrates continuity when examining the history of comics. Myths, which underpin social memory, facilitate the convergence of humanity's inner world with the external world. Mythological literature illustrates societal perceptions of reality, but mythological symbols play a crucial role in the construction of social reality. This category of popular culture goods, which particularly appropriates the narrative and motif frameworks of heroic-themed tales, reinterprets the folklore past through a novel language, form, and transmission medium (Şimşek, 2022: 453). Leslie Mullen (1998: 48) refers that in contemporary culture, myths have integrated so seamlessly with the cultural agents of their respective civilizations that they are scarcely recognizable as myths. In this context, mass media, including comics, cinema, and video games, are influenced by mythology, which is one of the most potent creative forms in the cultural domain. All cultural aspects within the same socio-cultural framework undergo a production process influenced by one another.

Mythology in comics may manifest as a literal or altered rendition of a legendary narrative, or it may feature comic book heroes derived from mythological figures. Moreover, particularly in America, the 'superhero' archetype has served as a prevalent emblem since 1938. The archetypal figures in traditional narratives persist in contemporary narrative forms, particularly influencing stories that unfold as heroic journeys. Considering the heroic adventure framework prevalent in contemporary media, including comic books and video games, which represent a modern narrative genre shaped by popular

culture, it is evident that the protagonists of folk narratives are employed, and the tales of historical and legendary heroes are reinterpreted with a novel narrative structure and substance (Şimşek, 2022: 453). Hougaard Winterbach (2006: 114) asserts that despite substantial transformations, the superhero concept remains prevalent today. The author asserts that while a character like Superman appears to be a product of the twentieth century, it elicits responses rooted in a much older archetype, namely the hero. Furthermore, the author highlights that the archaic hero, maintained through legend, myth, and folklore, may serve as a potential guide through various life stages. Joseph Campbell (1993: 256) asserts that narratives portraying legendary heroes provide symbolic representation of the subconscious wants, anxieties, and tensions that underline conscious human behavior patterns. Consequently, superheroes in comic books resurface as a contemporary mythology. Winterbach (2006: 161) designates this as 'heroic fantasy' and emphasizes that the populace continues to require heroic archetypes, which may be instinctively invoked from a collective unconscious.

3. Turkish Mythology in the *Wayfarer: Nomadic Realms* FRP Game, Accompanied by the *Turkish Mythology Atlas* Comics as a Transmedia Adaptation

Mythology holds significant importance, particularly in ancient societies. Mythology can be defined as a compilation of myths that narrate the origins of reality and the process of creation. Myths elucidate the processes of creation and the origins of existence, addressing actual events and fully realized phenomena (Eliade, 1993: 13). Thus, it pertains to the spiritual, psychological, and/or symbolic dimensions of truth or reality. It is essential to investigate the origins of Turkish mythology within the written records of civilizations that interacted with Turkish populations. Jan-Paul Roux (2011: 7) asserts that the inaugural Turkish Empire was established in the 6th century of the Gregorian calendar; nevertheless, despite the existence of Turkish populations prior to this period, the data from Chinese sources is inadequate. Nonetheless, he asserts that the Tabgach people, who commenced their migration from the region of Lake Baikal to the Chinese border in 260 AD, were Turks. The author asserts that the Bugut Inscription is the oldest extant text concerning the Turks (Roux, 2011: 11) and notes that while the influence of major faiths is apparent in the inscription, Turkpagan ideologies are predominantly represented.

Bartu Bölükbaşı (2023: 27) claims that Turkish religion has origins dating back to B.C. He underscores that it underwent continuous transformation from 2000 BC until the Gokturks, the classical Turkish era, and that Sino-Roman records

indicate that Turks convened at specific times of the year to offer sacrifices to deities, nature spirits, and ancestors. Pardaeva Dilduza Raimovna (2021:115) elucidates the concise history and evolution of Turkish mythology as follows: “*By the first millennium BC, the ethnic groups known as Turkic communities—who lived in Europe, North Africa, and portions of Asia toward the end of the third millennium BC—had evolved into horse-drawn nomads. Conquest, linguistic transformation, conversion, and merger helped numerous ethnically varied communities join the Turkish people in the next centuries. Turkish people have shared cultural traits, historical background, and common gene pool from which they derived. The most significant Turkish-speaking ethnic groups nowadays are Turks, Uyghurs, Uzbeks, Kazakhs, Kyrgyz and Turkmens, and Azerbaijanis.*” The social and cultural concepts derived from Tengrism, Animism, and Shamanism, along with the nomadic lifestyle of various ethnic groups, have profoundly impacted Turkish mythology. Bölükbaşı (2023: 27), using L. P. Potapov's study of Siberian Turk beliefs, asserts that the Turks possess a distinct religion. Bölükbaşı (2023: 27) asserts that Turks hold a belief in deities and spirits, offering sacrifices to appease them and avert their wrath, and shamans employ cult artifacts, such models of the tree of life and metal spoons, in their rituals and sacrificial ceremonies, and possess a moral framework that encompasses the entire community in their interactions with natural forces. Consequently, given that religion constitutes a system with regulations and prohibitions, governs individuals through interaction with supernatural entities, and fosters community by uniting them, it can be posited that the rituals characterizing Turkish society and shaping social cohesion compel all members to adhere to a common moral framework.

The *Turkish Mythology Atlas* and the *Wayfarer: Nomadic Realms* FRP game serve as study examples that incorporate Turkish mythology as its central theme, so permeating popular culture and reaching a wide audience. In the foreword and acknowledgments of the book *Turkish Mythology Atlas*, the author (Bölükbaşı, 2023: 9) asserts that the primary motivations for writing this book were the pioneering mythology studies initiated by Atatürk and the contributions of Tatar intellectuals from the Crimea and Volga tribes to the Turkish nation. He underscores that they cultivated the anticipation of uncovering their own history, and that with the advent of the 2000s, surged in global prominence, but Turkish mythology pale in comparison with Scandinavian mythology.

Shortly after the book's publication, the *Wayfarer: Nomadic Realms* FRP game, an adaptation of the novel to the DND5E-based FRP system developed by

the author in collaboration with the Metis Creative Studio team, was launched and garnered significant attention. The history of FRP games dates back to *The Lord of the Rings* written by Tolkien (Fimi, 2010: 3-4). Numerous FRP games have been released since the 1970s. The fundamental characteristic of these works is that the setting is an entirely fictitious realm conceived only in the author's imagination, wherein the authors have devised novel languages, races, belief systems, and mythologies to enrich this universe. In FRPs, individuals assume many races and character classes. These characters include attributes like strength, agility, endurance, intelligence, wisdom, and charisma; belong to races such as human, dwarf, elf, gnome, half-elf, and half-orc; engage in professions such as saint, barbarian, witch, thief, wizard, warrior, monk, and ranger; exhibit inclinations towards regulations, and possess various skills (Waskul & Lust, 2004: 336; Arslan, 2016: 17-18). They are categorized based on. Each race and class possesses distinct capabilities, and the character can utilize only a certain amount of abilities, which can be chosen at the game's outset and acquired subsequently.

This study analyzes the representation of Turkish mythology in cultural memory as depicted in the *Turkish Mythology Atlas* comic book and the *Wayfarer: Nomadic Realms* FRP game, employing content analysis as the methodological approach. A specific framework must be established to classify both works using content analysis. Transmedia, initially articulated by authors across various disciplines including media economics, video games, and television studies in the 1990s, refers to the dissemination of a narrative to the audience via multiple platforms such as film, television, comic books, mobile applications, digital games, and social media. Henry Jenkins (2012: 944) defines transmedia storytelling as a method wherein essential components of a narrative are methodically disseminated across several distribution channels to forge a cohesive and synchronized entertainment experience. Transmedia, however, signifies a broader narrative and/or narrative universe as it employs diverse languages (verbal, iconic, etc.) and various media platforms (film, comics, television, video games, etc.) (Sousa et al., 2016: 5). Consequently, the narrative is rendered so intricate, engaging, and multifaceted that it cannot be entirely comprehended or examined inside a singular work or setting (Jenkins, 2012: 946; Sousa et al., 2016: 7). Consequently, the seven principles of transmedia storytelling are identified as follows: expandability versus diversification, continuity versus diversification, selective absorption versus immersion, world-building, serialization, subjectivity, and performance. Transmedia narratives do not rely on a single medium to convey the entirety of the story; instead, the story

universe is disseminated across multiple channels. Each medium contributes to the narrative through its distinct qualities, encompassing numerous characters, events, and stories associated with these characters within its specific universe (Ozarslan & Perdahcı, 2022: 87). The narrative universe is structured to expand continuously, with this expansion taking place both within the fictional realm and extending into the non-fictional world, influenced by the actions of both the audience and the producers.

Content analysis is an approach that emphasizes the identification, reorganization, and reinterpretation of texts and their meanings (Cengiz, 2015: 26). The objective of content analysis is to draw conclusions regarding the social reality that is not apparent in the studied material, and it is thus conducted within a specific context of aims. During the coding phase, the examined data are segmented into coherent units. At this point, efforts were made to delineate category boundaries clearly, considering the fundamental problems and conceptual framework of the study. Consequently, the fundamental themes present in the book that intersect with the game have been categorized under three areas.

The principal concepts that emerge in Turkish mythology are as follows:

3.1. Creation in Turkish Mythology:

Turkish Mythology categorizes creation into three aspects: the formation of the cosmos, the emergence of humanity, and the establishment of tribes.

Halil Can Akgün (2017: 18) examines two categories of creation myths, acknowledging the absence of a singular origin myth and the dispersed nature of ancient Turkish societies. These encompass the Central Asian Creation Myths and the Altai Creation Myth. Iranian mythology and Manichean religion exert an impact on Central Asian creation myths. Dualism exerts significant influence. In the Altai creation epics, God Kuday resides in the sky and Satan Erlik dwells underground; nonetheless, they are not omnipotent deities, but rather formidable divine entities. The Turkish deity concept reformed the dual god system in Iranian mythology into a monotheistic framework. While the dualistic worldview in the Altai legend parallels Iranian dualism, Iranian mythology posits that humans were formed after to the formation of the universe, whereas the Altai story predominantly asserts that humans existed before to the universe's birth. Once more, in the legend, water prevails above all. There exists no earth, moon, sky, nor sun. God (Kuday) and the individual are soaring above the water. Bölükbaşı (2023: 167) also references tree and cave myths within genesis

narratives. Bölükbaşı (2023: 167) asserts that the beech tree was considered sacred by the ancient Turks, as it was the same species as the tree of life; he notes that Ülgen and Umay descended into the middle region as a pair of beech trees. Bölükbaşı (2023: 170-171), who underscores the myth of cave birth, summarizes the Kyrgyz traditions as follows: *"In order to create the first human being, the powers of nature collaborated and formed mud in the soil with the torrential rain they produced. The wind pushed the mud into a big cave, causing it to tumble into its crevices. The mud in the cavities froze and took on human shape, being cooked by the heat emitted by the sun god, unveiling the first human couple, Great Moon Ata and Great Moon Mother. The first human couple lived for 120 years, giving birth to several children before dying. Their grandsons built a golden throne in the cave where their forefathers were born and constructed gold idols on top of it. Once a year, they meet in this cave to offer sacrifices to their ancestors."*

The creation stories and significant symbols, illuminated by historical data in the *Turkish Mythology Atlas*, are articulated and given to the audience within the game, seamlessly interwoven into the game logic through the aforementioned dualist framework.

3.2. Structure of the Turkish Mythological Universe:

The universe/world design in Turkish mythology is depicted as a structure with contradictions of its own. Taoism is an infinite potential for existence that transcends existing and nonexistence. This potential becomes actuality and produces both existence and nonexistence. The universe we live in is diverse because of the fundamental opposition between existence and non-existence, which generates an infinite number of oppositions. Cosmological stories collected in the 19th century state that Erlik and Kayra Kan, also known as Ülgen, are opposing powers. Erlik is the source and creator of natural and moral evils, whereas Kayra Kan/Ülgen is the source and creator of natural and moral benefits. Other Turkish tribes have also been shown to exhibit this duality. Yüryung Ayıg Toyon and the devil are seen as opposites by the Yakut Turks (Özkan, 2022: 226). All deities, societal structures, ethical attributes, and rituals are organized in accordance with this dualism. Bölükbaşı (2023: 65) asserts that the ancient Turks possessed a dialectical comprehension with origins tracing back to prehistoric central Siberia. This cosmos, referred to as duality in mythological narratives, is founded on the clash and complementarity of light and dark powers. The dialectical nature of the process permits light to metamorphose into darkness and enables darkness to acquire good attributes associated with light. The author

asserts that this scenario is depicted in mythological narratives where two deities contend, resulting in the formation of antagonistic realms. Subsequently, the subsequent generation of heroes dismantles these realms and creates their own (Bölükbaşı, 2023: 27), emphasizing that the ancient Turks' worldview is not dichotomous. He asserts that this is not accurate and that natural elements are ever evolving through their interactions.

The structural framework of the universe described by the author in the book is inadequate for storytelling; it is more effectively utilized in the game, since a fictitious narrative aligns better with the FRP game format. Fantasy Role-Playing games (FRP) possess intricate rule systems. In games including a storyteller, the narrator constructs the entirety of the universe inhabited by the players (Çeken & Çiçekli, 2018: 36-37). In this narrative universe, the player governs a fictional figure. The player customizes a character's appearance and engages in the game environment through this character (Safko & Brake, 2009: 326). For the first time in the game, the lifestyles of steppe peoples, including the Scythians, Huns, Gokturks, and Kushans, as well as the obscured geography of Inner Asia inhabited by these groups, are portrayed as a backdrop. Players can also engage with the pantheons of deities referenced in the social Turkish mythology of these communities.

3.3. Notable Heroes and Creatures:

The dualism in the origin and construction of the universe is also evident in hero and monster mythology. Nonetheless, both of his works can endure as exemplars of heroes and demons. Archetypes are constructs of knowledge regarding entities that facilitate persons' comprehension and interpretation of the cosmos. He asserts that the transformation in Jung's psychology and the characters of myths are archetypal concepts, categorized as frameworks that structure the individual's perception, delineate, encompass, and cultivate the contents of consciousness (Ersoy, 2011: 1). Every character and narrative in myths and mythical tales aligns with an archetype, and human history remains consistent across various cultures globally.

Conventional hero archetypes found in comics and games are significant characters in epics, legends, and folklore of Turkish mythology. The initial subject is Alp Er Tunga.



Fig. 1. Alp Er Tunga, *Turkish Mythology Atlas*.

The initial documented reference to Alp Er Tunga is located in the Avesta, the sacred text of Zoroastrianism. In the discussed work, Alp Er Tunga epitomizes the duplicitous and malevolent archetype of humanity. Nonetheless, given that Alp Er Tunga was also the principal adversary of the Iranians, he emerges as a heroic figure for the Turks. The second Iranian source with the most comprehensive information of Alp Er Tunga is Firdavsi's work titled *Şehnâme* (Shahnameh) (Öger, 2008: 509). Bölükbaşı (2023: 178) asserts that in the mythological narratives of the ancient Turks, Alp Er Tunga served as a cosmic emperor archetype that resonated throughout all Turkish communities. The term *tunga* is believed to denote an extinct snow tiger. The practice of adopting names from predatory animals originates from ancestral motifs that merge the strength of the warrior with the totemic animal in ancient Turkic culture. Alp Er Tunga, initially mentioned in Turkish sources in the Orkhon Inscriptions, is distinguished as a mythological figure due to the Persian people's apprehension of the wandering Turanians.

Huban Arığ is a prominent epic of female valor among the Khakas Turks. These poetry narratives, characterized by epic storytelling, represent heroic epics that depict the significant and intense efforts of one or more heroes on behalf of their

country (Ergun, 2010: 32). These epics encompass legendary components, including assistance from extraordinary entities, possession of magical artifacts, subterranean journeys, shape-shifting, manipulation of meteorological phenomena, resurrection of the deceased, healing of the infirm, and the execution of sorcery (Uluişik, 2018: 138). Huban Arıĝ possesses the ability to metamorphose into both living and inanimate entities; distinguished from other epic heroes by his warrior attributes, he also embodies numerous characteristics of shamans (Uluişik, 2018: 156). He possesses the ability to listen to the subterranean with one ear and the terrestrial with the other, exhibits profound intuition, and is accompanied by benevolent entities that consistently safeguard him from peril and extricate him from challenging circumstances.

The Epic of Oguz Khagan, one of the earliest oral works in Turkish history, is both an important work and a significant figure due to the insights it provides into ancient Turkish lives, customs, beliefs, and state organization. The epic's basic topics are the birth of Oghuz Khagan, his extraordinary childhood, becoming a hero, meeting his wives, the birth of his sons, his conquest of countries, the formation of Oghuz tribes, and his inheritance of his homeland to his sons (Terek, 2021: 1733). The motifs in the epic provide the connections between the events.

The Dede Korkut stories are regarded as components of the significant Oĝuzname epic tradition (Topcu, 2016: 356). These poems, imbued with legendary ideas from the Oghuz Turks, are instructional, informative, and enlightening, having contributed to societal formation and consciousness for millennia. Bölükbaşı (2023: 202) characterizes Dede Korkut or Korkut Ata as the renowned epic narrator and venerable elder of the Oghuz Turks. Korkut Ata gained prominence through the epic he composed and swiftly ascended to a position of opinion leadership. *Korkut Ata*, who acquired shamanic abilities with age, remedies incurable ailments, assigns names to all living and inanimate entities, presents youngsters with aspirational role models for their future, and narrates stories for both women and men. Gradually, he transforms into *Dede Korkut*, thereby embodying the collective memory of the Turkish community in which he resides. The Dede Korkut fables, significant instances of folk literature in Turkish comics, were originally published in the comic book medium in the weekly children's magazine *Çocuk Haftası* (Children's Week) in 1943. Serdar Şimşek (2022: 460) asserts that following the publication of the initial example, *Boĝaç Han*, in the 42nd issue of the magazine, there was a proliferation of adaptations of Dede Korkut narratives in comic book format, including *Tepegöz*,

Deli Dumrul, and *Boz Aygırlı*, illustrated by Mehmet Tekdal. He asserts that narratives exist regarding the Black Shepherd and the Yellow Castle.

Basat is a figure included in the Dede Korkut narratives. Basat, who vanquished the formidable adversary of the Turkish people, *Tepegöz*, within his cavern atop a mountain and proclaimed this triumph to his compatriots by igniting a large fire at the summit, has also been featured in comics and video games. Mümin Topcu (2019: 371) asserts that the story of Tepegöz and Basat comprises narrative systems interlaced with symbols that manifest in daily life, rendering its stages apparent, with every action being executed by the holy and arising from a cyclical process (fate) governed by his will. Similarly, *Deli Dumrul* is featured as one of the twelve Dede Korkut narratives. The Creator granted Deli Dumrul and his wife a lifespan of one hundred and forty years, whereas the demise of Deli Dumrul's parents is the most severe punishment imposed upon them (Şahin, 2018:55). The Dede Korkut narratives exhibit a structure that intertwines Islamic themes with nomadic Turkish culture, rather than focusing solely on the heroism of Oghuz rulers and valiant warriors.

Kögüdey Mergen is the protagonist and offspring of Maaday Kara in the Maaday-Kar Epic, an ancient narrative of the Altai Turks that retains archaic elements. Kögüdey Mergen ventures into the underworld to uncover the mystery of life, to resurrect his parents from the realm of the deceased, and to rescue his livestock and community from the grasp of death. Mustafa Nerkiz (2018: 303) asserts that the epic conveys insights into the ancient worldview and cognitive frameworks of the Turks, while also imparting significant messages regarding the utilization of intellect, the pursuit of knowledge, and the value of wisdom through various episodes, including the struggle against malevolent subterranean entities, confrontations with foreign khans, and the hero's matrimonial union.

Yama Kağan manifests as a hero who encapsulates the themes of ancestor and cosmic sovereign in the legendary narratives of the ancient Turks. Affiliated with the Turkish Khaganate AD. The Ongin Inscription, dated to the 8th century, states that Yama Kağan governed the four directions and achieved significant triumphs during his reign (Erkoç, 2018: 157). Bölükbaşı (2023: 196) posits that Yama Kağan could represent an early instance of the cosmic emperor concept developed from Oğuz Kağan. Following his reign, the governmental structure was in chaos, and the populace was plunged into suffering.

The epic of *Gesar*, the sovereign of the mythical realm of Ling, is a narrative compiled and documented from oral tradition among the Tibetan populace in the 12th century. The epic, with 20 million words, ranks among the longest in the

world. Due to the significant influence of indigenous religions and Buddhism in Tibet throughout its composition, some scholars attribute its origins to the pre-Buddhist era (David-Neel & Yongden, 1933: 13-14; Lianrong, 2001: 319). The pre-Buddhist elements in the epic predominantly reflect the influence of Tantric shamanism and the Bönpo religion, Tibet's pre-Buddhist ethno-religion (Bölükbaşı, 2023: 199). Gesar is accompanied by three generals, each shown as a distinct beast.

Köroğlu and *Keloglan* are prominent figures in Turkish mythology, equally referenced in popular culture alongside Dede Korkut and *Nasreddin Hodja*. The two characters and their associated narratives have been disseminated to the public not just via comics but also through mediums such as films, television shows, advertising, and animations (Şimşek, 2022: 459). Bölükbaşı (2023: 208) asserts that Köroğlu is not only a folk hero who restored order by vanquishing malevolent forces but also a significant mythological figure who has indelibly influenced Turkish consciousness, as he historically represented a Celali who resisted the oppression of Ottoman despotism against the Anatolian Turkmens. Nevertheless, Keloglan does not serve as an archetype like to Köroğlu. Keloglan is a character embodying both heroism and dishonesty, honesty and insidiousness, benevolence and manipulation. Consequently, although solitary events or interactions surmount challenges, the trickster archetype stays proximate due to the distortion of applications. Such characters are astute, consistently quick-witted, and typically avoid unjust circumstances, or they converge in a manner that allows for easy separation. This elicits laughter from the reader. Bölükbaşı (2023: 211) asserts that the Alevi-Bektashi Turkmen sects play a significant part in the Keloglan narratives. Despite the incorporation of Islamic elements, cosmological and religious practices in the Turkmen sects of Central Asia persist unchanged, influenced by millennia of Hinayana Buddhism, Manichaeism, and Brahmanism in the region.

Turkish mythology features not only heroes but also *Giants*, as well as malevolent entities such as *Aldacilar* (soul collectors), *Al Karıları* (demonic female beings that abduct infants or harm pregnant women), *Obidas* (demonic females with inverted heads), *Sekkas* (demonic infants resulting from incest), *Bastırıks* (nightmares), *Çors* (reverse-legged demons that inflict harm and cause death), *Hortlaklar/ Ghouls*, *İcgeks* (vampires that consume blood and propagate epidemics), *İt Baraklar/ Dog Baraks* (werewolves), *Küp Karıları/ Cube Wives* (witches), and *Periler/ Fairies*, all categorized as evil characters. Certain

characters are introduced in the game to advance the narrative and facilitate the player's exploration of the open environment inspired by steppe mythology.

In ancient Turkish cosmology, shamans serve as intermediaries among the inhabitants of the three realms, heal the ill, perform incantations, predict the future, negotiate with deities, interact with the denizens of the middle realm, engage in political disputes, and wield the power to curse individuals through malevolent wishes. It can be characterized as the clergy capable of incapacitating and/or inducing death in agony (Bayat, 2017: 13; Alp & Mutlu, 2021: 1025; Bölükbaşı, 2023: 264). The concept of harmony between humanity and nature is fundamental to shamanistic culture and philosophy. The cosmos, along with the world and its flora and fauna, constitutes a unified entity. In this regard, Shamanic culture embodies a connection to nature and communal sharing (Bayat, 2017: 21-151). In the shamanic mythology of the Sayan-Altai Turks, the terrestrial realm inhabited by humans is delineated from the celestial domain by a specific boundary, and shamans assert the existence of particular locations that facilitate the passage between earth and sky.

The play features characters from Turkish mythology, including *Horseman Nomad*, *Perihan* (witch doctors/female sorcerers who engage with supernatural entities akin to shamans), *Gray Wolf*, *Aksakallı* (tribal representative and mentor), *Aldaci* (soul collector), and *Küldürgiş*, although the book provides more detailed descriptions of these figures. They inhabit aquatic environments and lethally confront anybody who provoke amusement, while *Markut*, hybrid entities of human and avian form, assist shamans in the celestial realm and abduct infants by infiltrating homes through chimneys.



Fig. 2. *Wayfarer: Nomadic Realms* FRP Game.

4. Conclusion

The concept of transmedia, which is used to define a new narrative strategy produced in intermedia multimedia, consists of stories opened on many media platforms, where each new text contributes its own unique and valuable contribution to the whole. This story includes a process in which the content is systematically distributed across multiple distribution channels to create an unified and coordinated entertainment experience. In transmedia storytelling, a story is conveyed through more than one media platform, and this process is based on transforming and telling the story in accordance with the structure and content of each media platform used. Thus, the same story is presented as multiple plots and narratives in different media. However, what is important here is that the audience also has a participatory role in the story universe. In the last few decades, as digitalization increased and media platforms diversified, the number of such examples on different media platforms has gradually increased.

Wayfarer: Nomadic Realms FRP game, inspired by the book Turkish Mythology Atlas, which amalgamates elements of Turkish mythos dispersed from Siberia to the Adriatic, juxtaposes them with global myths, and offers an interpretation aimed at systematization. The study intends to analyze the representation of Turkish mythology in cultural memory through content analysis. Within the established framework for classifying works through content analysis, three fundamental categories emerged that are present in the book and intersect with the play. This encompasses the creations in Turkish mythology, the framework of the Turkish mythical cosmos, and notable heroes and creatures within Turkish mythology. The first category encompasses the genesis of the universe, the emergence of humanity, and the establishment of tribes. Specifically, two categories of origin myths, the Central Asian origin Myths and the Altai Creation Myth, are noteworthy. Dualism significantly impacts Central Asian creation stories. Turkish creation stories do not include omnipotent deities; rather, they depict powerful divine entities. According to the Altai legend, mankind predated the formation of the universe. The Turkish mythical cosmos is perceived as a framework founded on the battle and interplay of light and dark elements. This circumstance facilitates the dialectical progression of the process, akin to creation myths. The significance of epics and legends in Turkish mythology is seen in the third category. While figures like Alp Er Tunga underscore valor, virtue, and heroism as essential traits for a Turkish king, epics such as Huban Arığ serve as significant evidence of the status and significance of women in Turkish society. Simultaneously, it was exalted and revered in the ancient epics of the Oghuz Turks; the character of Dede Korkut, a

semi-legendary sage well-versed in the traditions and customs of steppe life and safeguarding the tribal structure, signifies the significance of elders in the transmission of Turkish culture across generations and in instilling social values. The same soul collectors, demonic female entities with inverted heads, nightmares, ghouls, blood-drinking vampires that propagate epidemics, werewolves, witches, and fairies constitute malevolent figures in Turkish mythology, contributing to the mythological framework and narrative development.

The Shamanic belief that influences Turkish mythology is prevalent in the narratives and characters depicted in both works. It is founded on the intrinsic connection between nature and the supernatural belief system. Shamans facilitate the connection between the natural and the sacred, forging a terrestrial link with ultimate essence. This reflects remnants of a polytheistic belief system, indicating that the Turks' religious system is unified by the concept of deity that pervades nature. The Legend of Oguz Khagan and the Dede Korkut legends, prominent narratives in Turkish mythology, are historically presented in the book; nonetheless, the game draws inspiration from these works and integrates them into its plot. The game encompasses the lives of steppe peoples, including the Scythians, Huns, Gokturks, and Kushans, as well as the Gokturk alphabet, Inner Asian geography, and the social structures of Turkish villages. Simultaneously, pantheons featuring the deities referenced in the novel, Oguz Shaman, the semi-divine figure Bahadır, Huban Arıĝ, Tepegöz, Keloglan, and numerous more Turkish legendary heroes serve as protagonists that will propel the narrative forward. Consequently, these works serve as significant exemplars in elucidating the story, universe, characters, society, and philosophy inherent in Turkish mythology.

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chapter 3

Comic Book Aesthetics And The Influence Of The Fumetti Style On Video Games: "Diabolik: The Original Sin Case Study"

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Abstract

Media contents have had various effects on each other throughout history. Especially from the newspaper period, when audiovisual media emerged and made it accessible to the public, comic book narrative, which is a form of visual storytelling, has a history equivalent to the history of printing. Comic book narrative, which has found a space for itself in various printing and publishing formats for many years since its emergence, has had a high interest and influence in the United States and various countries in Europe. Video games, on the other hand, have been influenced by many art forms and narrative styles since the 1980s, when they started to produce content based on visual storytelling, and comic book narrative has been present in certain games.

Since the early 20th century, comics have been consumed with interest in many parts of the world, especially in Europe, and one of the prominent styles of comics is known as the Italian fumetti style. Fumetti took its place in the European printed media from the early 1900s and still continues its influence today through different media as well as its traditional structure. Digital games, on the other hand, were seen as an area open to exploration for comics in their early periods. Diabolik, which was one of the most influential comics of its period and started to be produced in 1962, was transformed into digital game content in 2007 by Italian game development companies with the help of game narrative. In this study, comic book aesthetics and their potential relationship with video games are examined through the example of Diabolik: The Original Sin is analysed through the game example.

Keywords: Comic Book Aesthetics, Fumetti, Digital Games, Diabolik

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1. Introduction

Comic books, with their unique narrative forms and aesthetic structures, have managed to become an art form that has been developing for more than a century and affecting different media. Comic books have a rich history, diversity and global influence, as they play roles such as giving social messages, presenting different perspectives and conveying cultural values. As a dynamic form of traditional media, comics, which emerged in Europe in the late 19th century and became a phenomenon in the United States with the 'Action Comics' comic book of 1938, created a pressure on the original forms developed by different countries and cultures for a long time with its moving and dynamic drawing style (Johnson, 2012, Levitz & Baker, 2013). Over time, comics, each of which developed a unique aesthetic language in Europe, spread to a wider audience. While American comics were stuck in superhero themes, fumetti, which started to develop in Italy in the early 20th century, differentiated itself with a more realistic and detailed drawing style and short and independent stories.

Generally using themes such as crime, mystery, suspense and adventure, fumetti features complex characters, intriguing plots and unexpected turns, and the skilful use of black and white tones ensured that the atmosphere was felt by the reader. Forming an important part of the European comics tradition, fumetti increased its popularity with iconic characters such as Corto Maltese, Tex Willer, Zagor, Dylan Dog, Mister No and Diabolik.

The aim of this study is to examine the similarities and differences between fumetti-style comics and video games in terms of narrative, visuality, interaction and player experience. In addition, it is aimed to reveal how both types of media use different methods of storytelling, character development and the connection with the player or the audience. The study aims to understand how comics and video games use different narrative techniques, how these two genres are influenced by each other, and which features are the main elements that distinguish them from each other. Fumetti-style comics and video games use similar narrative structures and visual elements, despite the fact that both media have structural and narrative features that can be perceived as very different from each other. There is a lack of systematic comparison of the similarities and differences between these two media types. This research aims to fill this gap and provide a deeper understanding of the relationship between fumetti-style comics and video games. As a result, it is important to contribute to understanding the similarities and differences between comics and video games. In particular, the interaction between these two media is a process that reshapes

storytelling and adds a new dimension to media culture. The study will not only contribute to the academic literature, but also provide guidance on how artists and producers can follow innovative ways in their creative processes in both media types.

2. The Emerge of Comic Books and Fumetti

Throughout history, media content has influenced and transformed each other, creating a complex network. One of the most striking examples of this interaction is the art of comics, which emerged with the rise of audiovisual media and increased public access to information. Comics, a unique form of visual storytelling, first emerged in 1827 with the work "Histoire de Mr. Vieux Bois" by Rudolph Töppfer and became known in the late 19th century with cartoons and comic strips published in newspapers and magazines. These simple drawings were often used to address current events and social issues through humor and satire, and when artists discovered the shared storytelling abilities of words and images, and as Scott McCloud put it, words and images moved in a line like two dancing partners, they became more complex and sophisticated in the early 20th century, and began to appeal to the entire world. In contrast to American comics, which are the most well-known forms today, comics in Europe developed differently from their counterparts in the United States. European comics often used more complex drawing styles and adult themes to tell more mature and micro stories. The Franco-Belgian comics tradition, with iconic characters such as "bande dessinée" (BD) Tintin and Asterix, and Italian comics, with popular characters such as "fumetto or fumetti", Corto Maltese and Dylan Dog, have become a medium that felt the need to be adapted to mainstream media and have had a profound impact on popular culture. Italian comics, which are also quite popular in Turkey, began with satire and children's magazines in the mid-1800s and reached their golden age with the publication of *Il Corriere dei Piccoli* in 1908. In this sense, Attilio Mussino's Bilbolbul character is considered the first Italian comic book character (Koşma, 2017; 1). Known as Corrierino, this publication was initially used instead of speech balloons, but later it was accepted as the first Italian comic book magazine thanks to its sequential narration and repeated character use. Before World War I, cartoonists such as Antonio Rubino contributed to the development of this art form. The full birth of fumettin was made possible by the first weekly comics magazine in Italy, *Corriere dei Piccoli*, which was published for 88 years, from 1908 to 1995, with more than 4,500 issues. Soon after, the fascist regime quickly realized the propaganda potential of

the new generation media of the period. In the 1920s, many periodicals, including *Il Giornale dei Balilla* (1923) and *La piccola italiana* (1927), published educational comics for Italian youth (Altea, 2013; 34). From January 1, 1939, the publication of foreign comics was prohibited, and Italian materials had to meet strict standards that glorified heroism, patriotism, and the superiority of the Italian race. To get around these restrictions, some publishers renamed American heroes with Italian names. The only exception to the censorship was Mickey Mouse, and it is likely that the character was exempted from these restrictions due to the strong relationship between Mussolini and the Italian publisher Mondadori (WeirdItaly, 2023; 1). However, starting with the weekly magazine's 303rd issue dated 13 October 1938, all American comics other than Disney were replaced by Italian-made comics. As the war continued and the United States became more sympathetic to the Allies, Mickey Mouse's exemption came under scrutiny. Mickey Mouse was later replaced by Tuffolino, a human character with similar physical characteristics, except that he was a human rather than an anthropomorphic animal, drawn by Pier Lorenzo De Vita (WeirdItaly, 2023; 1). Similarly, in Germany, the Nazis, who were disturbed by the popularity of Disney films, focused on Mickey Mouse's blackness and talked about the danger of the "negrification" of German culture, thus including Disney in their attacks on jazz, another element of American -that is, non-German- culture that needed to be eradicated (Huyssen, 2019; 1). While it is concluded that radical ultranationalist political ideology paved the way for the development of national comics, this argument can also be supported by the fact that Francophone (French-Belgian) works also showed a cultural resistance. Indeed, fumetti, which experienced its golden age in the 1930s and 1940s, gained recognition and fame all over the world thanks to the iconic characters that emerged during this period, and hosted unforgettable heroes including Tex Willer and Zagor. After World War II, fumetti quickly began to expand into different genres and formats, becoming a versatile and vibrant art form, and enriched its portfolio with the emergence of Italy's largest comics publisher, Sergio Bonelli Editore.

Just like the impact of comics on American culture and the world, fumetti has also taken an important place in Italian culture, beyond being a form of entertainment (Comberiati and Spadaro, 2023). The representatives of this style, which addresses social and political issues, offers different perspectives and sometimes dares to criticize the Vatican, and their content have created their own sub-forms over time. Fumetti noir, a comic book genre that bears the traces of American pulp novels and film noir in the late 1940s, has made a great

contribution to the formation of today's Italian style by bringing the darkest shades of darkness such as crime, betrayal and violence to its pages. Fumetti noir, which deals with themes such as murder, robbery and espionage with mysterious plots and draws readers in, has entered literature as works that depict the heroes of this world as beings in gray tones that extend beyond black and white, like a door opening to a world that extends from dimly lit bars to rainy and dangerous backstreets. The aim of fumetti noir artists was to deliberately blur the clear lines of good and evil and to make readers question their morality, and they were successful. These complex characters had to face ethical dilemmas at every step, causing the audience to question their conscience and inspired cult American comics such as *Sin City* and *The Crow*. So much so that anti-heroes who harm but save, who make us feel emotions such as hatred and love at the same time, and American-style characters such as Eric Draven, who was reborn from the theme of revenge and death, successfully continued the Italian dark epic. The dance of colors with dim light games and long shadows, elements such as shapes, lines, textures, light, composition and perspective are the most defining elements of a visual style. This visual aesthetic, which distinguishes fumetti noir genres from others, not only tells the story but also manages to make the reader a part of the dark world, and beyond being a comic book genre, it has served as a mirror reflecting the annoying aspects of 20th century Italian culture and society. These works bravely address the traumas caused by war and poverty, moral collapse and the deep tunnels of the human soul, inviting readers to a compelling confrontation. In this sense, one of the most iconic anti-heroes of the fumetti noir genre is *Diabolik*, created by Angela and Luciana Giussani in 1962. *Diabolik*, whose real name is unknown, has gained the appreciation of readers as a mysterious and pulpy character who steals expensive works of art and jewels with his intelligence, skill and ruthless methods, and as a dangerous cartoon character that makes one think of the polite thief Arsène Lupin. *Diabolik*, a robber who lacks empathy and conscience, directly inspired another legendary work in 1964 with his sociopathic personality. Anthony Logan, also known for his skull mask, was a sadistic killer burning with revenge against the criminals who drove his father to suicide. In this respect, it resembles the early years of *Diabolik*, and just like other Italian dark comic series, *Kriminal* loses his mother and sister and is forced to spend his youth in a reformatory, and after long years full of pain and anger, he becomes an uncontrollable character. *Kriminal* never compromised on his current sadistic character, but over time, *Diabolik* developed himself and became a character with values such as honor, friendship, and loyalty, and began to steal

only from immoral and corrupt people, adhering to ethical principles (Cantürk, 2021; 1). Nevertheless, Diabolik could not fully complete a hero model, and all these changes as an anti-hero made him a more complex and interesting character. The unique atmosphere created by Fumetti noir also fueled the desire of readers to see familiar characters in different media. This situation led to the comic book taking its place in a wide range of areas, from modern graphic novels to films and video games. Especially since the 1980s, when visual storytelling came to the forefront, video games have developed under the influence of comic book narratives. One of the most obvious and powerful examples of this interaction is the use of manga in games known as visual novels, and the two art forms have become even more effective with their shared style. With its unique artistic approach, fumetti noir has also become a preferred style for the gaming industry in the last twenty years, and Diabolik, the most popular work of the genre, has continued to share a common style with the point-and-click adventure game Diabolik: The Original Sin, both in style and in the nostalgic story that readers long for. In this game about the unusual hero of the story, the static and cutscenes reminiscent of comic book panels have provided great convenience to the developers in order to preserve the integrity of the game.

The sharp and dynamic lines used to emphasize that Diabolik is an agile and dangerous character with the cutscenes that completely preserve the comic book style, also utilize the basic technique in depicting the character's fast movements and sudden turns. The use of black and white tones allows Diabolik to hide in the shadows and the darkness to give him an advantage, just like in the original comic book, while the minimalist details and approach focusing on elements such as the hero's mask and cape preserve the mysterious atmosphere. Cinematic elements and of course animation are a high cost item in the video game industry. Utilizing the techniques of comic book artists of the 60s -especially Japanese artists- that put readers in the driver's seat and make them feel the speed, Original Sin creates a similar effect on the player using simple animations, assuming that if observing an object in motion can give the feeling of being included in the text, stepping into the shoes of this object will strengthen the same effect even more. The game's developers have focused on a dark plot, highlighting the themes of intrigue, love and revenge, which are addictive and prominent in the comics, as well as an interesting graphic style that combines 2D and 3D elements. A dynamic dialogue system has been created specifically for Diabolik: The Original Sin's needs, allowing conversations with more than 30 characters (Holman, 2024; 2).

3. Examination of the Relationship between Comic Book Aesthetics and Game through Examples

Comics and comic book aesthetics reflect the characteristics of the art form created by combining visual and written elements. The components of a comic book encompass each of the elements that create the aesthetic experience. Comic book aesthetics and its components can be collected and examined under certain headings. Panel Layout, Drawing and Character Design, Color and Tone, Speech Balloons, Time and Flow, Frame and Perspective, Shading and Lighting, Social and Cultural References, Sound Effects and Typography, Emotional and Thematic Reflections and Storytelling in a comic book offer both a visual and textual experience. Each element works in harmony with the others, helping to present an interactive and rich story to the reader. The Fumetti style, which is a unique style, can be distinguished from other schools with certain features. Unlike other comic book genres, Fumetti uses a cinematic narrative style. Transitions between panels are arranged like film frames, and the movements of the characters are conveyed more naturally. The designs are usually known for their deep use of color and shading. The intensity of shading and colors reflect the mood of the characters or the atmosphere of the story. Fumetti usually focuses on social, political or dramatic themes. The content is sometimes mixed with public relations or social criticism. Especially in the 1960s and 1970s, works reflecting the social structure and cultural context of Italy are frequently seen. It frequently references Italian culture, traditions, history and social events. Fumetti, which is usually published in magazine format, high-circulation magazines and weekly publications played an important role in the spread of fumettis. Mostly, comics are published in black and white, not in color prints. Sometimes combined with stylized realism, human figures, environments and scenes are drawn in detail in Fumetti. Fumetti, unlike classic western comics, is also considered a difference in that it uses a single storytelling format per page, sometimes based on short stories. Fumetti continues its current aesthetics in gaming media without any changes. Many games have been produced based on comic book aesthetics. Among these game productions, there are games produced based on Fumetti aesthetics. *Diabolik: The Original Sins*, one of the digital games produced based on Fumetti comic book aesthetics, is seen as one of the most well-known examples in the gaming industry.

Developed in 2007 by Artematica Entertainment and published by Black Bean Games, *Diabolik: The Original* is a single-player action adventure game. Prior to *Diabolik*, in 2005, the Italian developer Artematica: *Operation Dorian Gray* in

2005, Italian developer Artematica made its first attempt at both a comic book story-based game and its first production in the point-and-click game genre. The only example observed here in accordance with comic book aesthetics is that the screen is divided into panels in the game's cutscenes and cinematics in accordance with the 4:3 screen scales of the period (**Figure 1**). In the overall gameplay and interaction of the game, it is not possible to observe elements that would fit the comic book aesthetic and design genre.



Figure 1: Game Cinematic from Martin Mystère: Operatiob Dorian Gray
(Artematica Entertainment)

When the game's cinematics are shown, the character who will perform the in-story interaction is placed in the center front panel in the form of moving animation, while the panels placed in the background at approximate scales and depths show various sections of the space where the interaction takes place. Although it can be observed that this is a move away from a standard fixed camera shot and closer to a comic book aesthetic narrative, it is also noteworthy that the panels in the background do not serve the narrative shown.

In 2007, the same company and developers released Diabolik: The Original Sin by the same company and developers in 2007, the comic book aesthetic is reflected in the entire narrative of the game, and all visual representations have a linearity that belongs to the original work of the comic book. From the opening screen of the game (**Figure 2**), the general aesthetic of Diabolik comics can be observed.

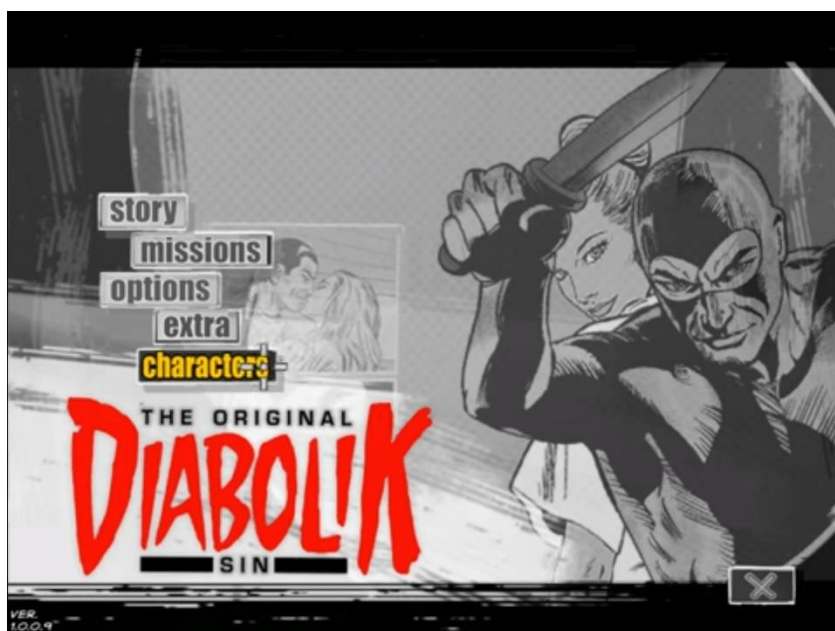


Figure 2: Diabolik: The Original Sin Main Menu (Artematica Entertainment)

Starting from the prologue, the game consists of a total of seven chapters with the names 72 Hours, Dead-end Railway Track, Eva's Last Breath, Rain of Fire on the Lake, Diabolik's Secret Hyde-Out, White Rose's Petal, Twin Truths and The True Face of Evil. The game is completed with the flow of credits and has an average play time of 180-200 minutes. The game features three playable characters and a character screen accessible from the login screen. Here, there are character sheets for all three characters along with their portraits taken from the comics (**Figure 3**).



Figure 3: Character Sheets for Diabolik: The Original Sin (Artematica Entertainment)

One of the most striking elements of the character breakdown page is its conformity to comic book aesthetics. Here, the design of icons, frames and character portraits can be seen in hand-drawn form. After the opening screen and before the game starts, the player is given a choice between "more action" and "only adventure", as opposed to the easy or hard options that can be seen in a classic game. This can be considered as another element that shows that the narrative style of the game is also in line with the comic book jargon. The action animations in the game are designed to resemble the pages of a comic book (Figure 4).



Figure 4: In Game Action of Diabolik: The Original Sin
(Artematica Entertainment)

While the gameplay is a standard 3D and 2D mixed style point-and-click, when the game switches to interaction actions, the visuals first switch to a comic book paneling style, while the sound actions are defined by the written action styles found in comic books. The game prefers 3D rendered animations in the transition animations between scenes, and prefers the comic book aesthetic narrative in the transition between chapters and promotional cinematics, as in the interaction actions.

In the opening and closing credits of the game, the 3D animation narrative was designed in comic book aesthetics, in addition to these designs, it was observed that the characters in the game were rescaled, while the complementary elements of the credits animations were created in the form of comic book panel narrative (Figure 5).



Figure 5: Diabolik: The Original Sin Opening and Closing Credits
(Artematica Enternatinment)

In the top three panels of the image number 5, where the opening credits of the game can be seen, it is noteworthy that the game name font is used in the same way as in the comic book. In the visual flow where the characters and the story universe are shown in picture tables, the table interiors are filled with drawings taken from the comic book and the model of the Diabolik character designed for the game is added to the animation. At the end of the opening credits, the character of Diabolik appears in the animation in portrait form as he appears in the comic book. The closing credits of the game are activated after the end of the story. In the exit credits animation, which starts with the "END" indication in the comic book aesthetics, the name of the developer game company is placed in a way to meet a vertical format visual design based on the Diabolik character, and it can be observed that the names of the artists and developers involved in the production of the game flow in the form of a "cinematic roll".

Fumetti's visual and narrative richness provides depth and an artistic touch in digital game design, allowing the two media to evolve in a creative cycle that feeds each other. The game generally remains loyal to the aesthetics of the comic book it is based on and tries to reflect this in all areas where it can be applied within the game narrative. Continuity is provided by style, aesthetics and narrative repetition in the narratives included in the linear flow of the game. The relationship between digital games and comics offers a strong bond because both media are based on visual storytelling. While comics offer stories enriched with

static visuals, digital games carry these stories to an interactive format. Fumetti (Italian comics) can be seen as a bridge supporting this transition, especially in terms of dramatic narrative, detailed character design and visual aesthetics. The detailed storytelling and dark atmosphere that Fumetti focuses on has been a source of inspiration for role-playing games and cinematic games in the digital gaming world. In this context, we can speak of an interaction between digital games and fumetti that expands the boundaries of visual storytelling.

4. Conclusion

Comic books have their own narrative forms and accepted aesthetic structures. While each type of comic book can show certain differences according to the country, artist and culture in which it is produced, the comic book narrative is seen as a type of media in terms of its general structure. The fumetti style comic book structure originating from Italy also has its own aesthetics, as in each unique comic book form. Elements such as the clarity of the lines, the use of colors and lights, the way the narrative progresses, textures and perspectives stand out as the features that make the fumetti genre unique.

The Diabolik comic book and character, produced in the fumetti noir genre, which is one of the pioneers of anti-hero narratives, is one of the productions with a high resonance and cultural impact among comics with its own unique narrative. The Diabolik comic and its story, which had a strong relationship with its buyer both economically and culturally at the time of its production, also came into contact with digital games, the rising trend of the 2000s.

Based on the Diabolik comic book, Diabolik: The Original Sin not only takes the Diabolik universe or character as a reference, but the entire structure, aesthetics, gameplay and visual design of the game is faithfully based on the fumetti comic book format. A successful example in the field, Diabolik: The Original Sin is an important example that points to the possibility of comic book aesthetics and game narratives going hand in hand.

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chapter 4

Interactive Narratives and Cross-Media Adaptations: Cross-Media Experiences Integrating Comics, Video Games and Gamification

Berk SAVI¹

Summary

Convergence in the digital domain is the experience used to examine cross-media adaptations of disciplines such as comics, video games and animation. In this framework, Interactive Narratives and Cross-Media Adaptations: Cross-Media Experiences Integrating Comics, Video Games and Gamification aims to explore the interaction and commonalities between disciplines such as comics, while examining how interactive narratives evolve on different media platforms from different perspectives. On the other hand, he conducts various researches in this field by considering in detail how comics create a synthesis in these cross-media experiences where various elements of video games and gamification come together. In particular, the contribution of graphic design fields in presenting the products released on media platforms to the user experience such as viewers and players is also discussed.

In the 21st century, another issue that concerns comics, video games and gamification is to bring to the public how cross-media experiences build bridges between themselves. In this direction, the audience or the player focuses on different application areas. In particular, how interactive narratives develop on various platforms such as animation applications, and how the interaction between these platforms offers a rich experience to the audience or players. In this regard, the effects of the gamification approach are also emphasized. The study offers strategic reflections on the challenges that audiences or players face when switching between different media formats and how these challenges can

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be overcome. It also provides an in-depth resource for designers, animators and developers. It also addresses the complexities of creating a coherent experience, focusing on the challenges and opportunities of cross-media experiences.

It explores the convergence of comics, video games and gamification in the 21st century. It also explains how producers and developers play a key role in enriching interactive narratives and ensuring consistency across different platforms. The chapter explores how comic book and cross-media adaptations offer a unique unity between audiences and players.

Keywords: Convergence, Platform, Video Games, Comics, Animation.

Introduction

Examining how comics, cartoons, animations, video games and gamification combine to create interactive narratives and the cross-media adaptations that emerge in this process can be called one of the most interesting studies of the 21st century. No one even expected that so many media would emerge and integrate to create different products. Cross-media adaptations allow different types of media to come together to create products such as rich and interactive storytelling, gamification, cartoons, animation, and the popular three-dimensional advertising. "As Henry Jenkins notes, the interaction between different forms of media deepens and diversifies the user experience (Jenkins 2006)." These adaptations make it possible for users to engage more deeply in the story and transition seamlessly between different platforms. The interaction between comics and video games plays an important role in enriching interactive narratives. "As Janet Murray puts it, narratives in the digital environment offer new experiences for readers, viewers, and players, and the evolution of these experiences is made possible by the integration of different media (Murray, 1997, p. 4)." Integrating comic book aesthetics into video games allows users to experience familiar visual styles in different formats. Among all these disciplines, the graphic design department's interdisciplinary handling of design principles in a purposeful manner is also important in increasing the aesthetic experience in two-dimensional and three-dimensional perceptions. Graphic design is critical to ensure consistency and aesthetic integrity in cross-media projects. "Visual narratives make it easier for users to connect and interact with the story (McCloud, 1993, p. 25)." Graphic designers and developers enrich the user experience by maintaining visual integrity across platforms and creating interactive mechanics where appropriate. Interactive refers to situations that enable participants to communicate with each other or with a system in a continuous and dynamic way. Often in the context of technology and media, it describes processes where users

directly interact with the content or system to guide or change the experience.

Gamification is an effective way to increase user engagement and involve them more deeply in the story. "As Sebastian Deterding and colleagues note, applying game design elements to non-game contexts increases user motivation and engagement (Deterding 2011)." The concept of game comes to our day from ancient times. Hume's *Homo Ludens* should be utilized on this subject. The concept of people playing games has entered our lives as one of the units of expression and measurement that we classify as art, design, history, mathematics as a form of expression since the known history and even before. In my opinion, it is not a mistake to accept it as one of the first languages because it can be seen that many primitive beings use it to communicate. We can see that even wolves, as noble animals, play games. Many creatures that we cannot think of play games and take advantage of their life struggles by gamifying them. In this context, gamification strategies are a critical tool to enrich the user experience in cross-media projects. The creation of a cinematic in a digital game or the gamification of an animation contribute directly to each other. Although the two disciplines may seem very different, they actually address common programs and goals. Examples can be generalized to the advertising industry or the entertainment industry.

The success of cross-media adaptations depends on the ability to create a coherent experience across different media formats. "As Marie-Laure Ryan notes, this process presents both creative and technical challenges (Ryan, 2001, p. 14)." For example, the challenges faced in adapting comic books into video games and how these challenges were overcome illustrate the complexity and potential of cross-media projects. This study examines how interactive narratives evolve across different media platforms. Our research addresses the challenges and opportunities encountered in this process, emphasizing in particular the critical role of graphic design in the creation of these narratives and how it shapes the user experience. Graphic design has an important place in ensuring visual coherence between different media types and strengthening interaction mechanisms. In this context, we present ideas on how interactive narratives will take shape in the future and analyze the effects of emerging interdisciplinary products. Issues such as market areas, sales platforms for these products, target customer base and sectoral advantages and disadvantages are discussed in detail. The study aims to help readers grasp the importance of the subject and shed light on the sectoral development of interactive narratives.

1. Cross Media

Cross-media is a concept that refers to the integration of different media platforms and the sharing of content between these platforms. The definition of cross-media, its history, application areas and its impact on user experience are discussed. In addition, important research and theoretical frameworks in this field are discussed, and the influence of current sectors, platforms and programs on the relationship between the products of cross-media applications is also revealed.

"Cross-media refers to the combination of different media types to create a holistic content experience. For example, it means that a story or content is told on multiple platforms and that these platforms are designed to complement each other. This integration allows media consumers to experience content in a variety of ways (Göker, 2020, p. 503)."

The concept of cross-media has evolved with developments in media and communication technologies. Cross-media applications, which first emerged as content sharing between print media and radio and television, have become more complex and integrated with the digital revolution. Similar developments have taken place in Turkey, and cross-media applications have increased with the expansion of media content on digital platforms (Yoloğlu, 2019, p. 1453). Cross-media applications allow users to be more deeply involved in the story and to switch seamlessly between different platforms. It has been stated that digital narratives play an important role in this context and users can access richer content through interactive media experiences (Yıldırım, 2019, p. 122). For example, a comic book series can also be presented as a video game and a television series, allowing users to experience the story from different angles. For example, the fact that the "Witcher" series is not only a comic book, but also a movie, a TV series, and a game, brings the story and narratives to many target audiences and drives them to become readers or players. This has enabled the cross-media application to reach the masses to every work of the product in the market area. Of course, I cannot say that I have confirmed this only through this example, but when we look around us, we can see many similar interdisciplinary approaches and cross-media adaptations. What about the "Lord Of The Rings" series, from the radio broadcasts to the books, I think this is a narrative that again supports the theory we have put forward. To say it's just the books is an understatement for this narrative, and the game "Middle-earth: Shadow of War"

game, which excited a generation, has also added excitement to this series again and we can say that it has dragged the viewers to buy the game and the players to watch the movies.

1.1. Cross Media Application Areas

The entertainment industry is one of the areas where cross-media applications are most prevalent. The movie and TV series industry in particular uses cross-media strategies to expand their stories and reach a wider audience. For example, the Marvel Cinematic Universe offers integrated stories across various platforms such as comics, movies, television series and video games. In Turkey, TRT's various TV series and movie projects are supported through social media and other digital platforms to increase their audience (Şahin, 2017, p. 45). This allows users to experience the story from different angles on different platforms. "Cross-media has also become an important tool in the field of education and training. Educational materials are presented on different platforms such as video, interactive modules, e-books and mobile applications, providing students with a more comprehensive learning experience. Cross-media strategies play an important role especially in distance education systems (Demir, 2020, p. 45)." It discusses how gamification strategies can be used in cross-media applications in education and how these applications can be effective in increasing student motivation. Marketing and advertising also benefit greatly from cross-media strategies. Brands are using various media platforms to promote their products and services, delivering more integrated and effective messages to consumers. For example, a brand can run a coherent campaign across social media, television commercials, print publications and digital platforms. This strategy increases consumer engagement with the brand and builds loyalty.

1.2. Cross Media - Social Media and New Technologies

Social media is nowadays an effective tool for implementing cross-media strategies by actively creating incentives, sharing them and attracting attention. By increasing users' ability to share, comment and interact with content, social media platforms enable cross-media projects to reach a wider audience. For example, a television series can reach a wider audience by promoting it on social media and interacting with users (Çetin, 2017). The integration of different media platforms, shaped by changes in technology and user behavior, is expanding its experience and market area with different technologies day by day. Especially the

development of augmented reality (AR) and virtual reality (VR) technologies will further enrich cross-media experiences. It is predicted that digital narratives will become more interactive and user-oriented in the future (Gültekin, 2021). These technologies will enable users to have more immersive and integrated media experiences. A user experience enriched by the integration of different technologies and the genres that transmit them, and the sharing of content between these platforms, will push the audience to rediscovery. Cross-media, with its wide range of applications in entertainment, education and marketing, will continue to evolve with changes in technology and user behavior. Globally, cross-media applications are increasing and research in this field is gaining importance. In the future, it is predicted that cross-media experiences will become more diverse and users' content consumption habits will be shaped accordingly. In this field, developing and undeveloped countries will increase the competition by creating products with this approach. Although convergence with different disciplines can be achieved, it may be advisable to put forward more collective attitudes as a result of a strategy and approach. Supporting these fields is also a necessity. Just as software and hardware fields are supported, there are branches that need support; depending on graphic design or art design, there are varieties such as digital game development, cartoons/animation, film, simulation platforms, e-books, comics, manga. If mainstream media tools are not filled strategically, they do not have any importance in the platforms or new media on which they are published. In addition to all these, speaking of new technologies and art, "NFT" has been sounding familiar since 2014 as a recent era. NFT projects with many popular culture elements attracted a lot of attention on web3 platforms, didn't they? These sometimes included the products of different disciplines such as painting, sculpture and photography, in fact, these fields can directly or indirectly affect cross-media adaptations.

Before the 2000s, we could only imagine how interactive a gamified movie could be within cross-media experiences, but technology allows us to create content that is so different it is mind-boggling. On platforms such as "Netflix", "Black Mirror/Bandersnatch" This series allows viewers to determine the course and ending of the story by making choices at certain points. This kind of interactive content allows the user to participate directly in the story, personalizing the experience and making it more interactive. Offering different paths and endings based on the viewer's choices, "Bandersnatch" demonstrates how interactive narratives work and how they shape the user's experience. While many series that directly engage the audience have started to appear, I think it would not be

going too far to say that the main source of this is digital games. You know that in games, if the story is not direct (linear), the player's choice of the flow of the story provides more interaction and persistence in the game, which is part of gamifying the story. First of all, it may be more accurate to introduce these issues by knowing the main and intermediate platforms.

1.3. Main Platforms and Intermediate platforms

In Cinema and Television, we encounter examples such as movies, television series, cartoons, animations, short films. Cinema and television are the main platforms that reach large audiences and are strong in audiovisual storytelling. In cross-media projects, this is often where we can see the main storyline, because scripting a ready-made story is a direct way for directors to operate and profit.

Comics/Graphic Novels, E-books and Digital Publications; Kindle, Marvel Comics, DC Comics Apple Books, E-book platforms offer interactive books where readers drive the story through their choices. Comics are an important part of cross-media projects, providing side stories and character development that support the main story.

In Video Games, console games, computer games, mobile games, digital games on various bases are ideal platforms for interactive narratives that involve the active participation and decisions of players. Games provide the opportunity to explore various branches of the story.

Digital Platforms and Streaming Services include applications such as Netflix, Amazon Prime Video, Disney+. These platforms host various formats of cross-media projects (series, movies, documentaries) as well as interactive content. "Black Mirror: Bandersnatch", "ChooseLove", "BabyBoss: ChachtheBaby", "Jurassic World Cretaceous Camp: Hidden Adventure", "CarmenSandiego: To Steal or Not to Steal", interactive movies are broadcast on these platforms. It is seen that the works that are games in terms of interactivity are not made interactive, one of the main reasons is that there is no need to re-process and interact as a series of movies, while many options are already offered to the user in the games about participation and exploring different experiences and creating different scenarios in the flow of the story. In this case, it is necessary to say that there are producers who, as in the DC universe of different scenarios, pull two different scenarios according to the reactions received from audience interaction and connect their different aspects to the main theme.

As intermediate platforms, it is known to create entertaining moments or

content that have the characteristics of advertising with arrangements that will create high interaction where works and products are promoted. Social media is used to promote cross-media projects on channels such as Facebook, Twitter, Instagram, YouTube, etc., to engage fans and share additional content. There can also be interactive campaigns that encourage users to participate in the story. These offer advantages such as reward distribution and early access to viewers. When we think of interactive, we usually only think of adding the user experience to the storyline, but strategies developed to excite them about products also provide interactivity. Websites and online portals; official movie/series websites, fan sites, interactive story sites, these platforms support and expand the main story by offering additional content, games and user interaction. Podcasts and audiobooks; audio content on channels such as Spotify and Audible are used to tell stories in audio format. Interactive narratives can be presented in audiobooks by directing them to different sections according to the listener's choices. Augmented reality (AR) and virtual reality (VR); AR and VR platforms in new media spaces such as Oculus Rift, HTC Vive, ARKit (Apple) allow users to participate in stories in an immersive and interactive way. These technologies further enrich interactive narratives and cross-media projects. Blogs and online articles; apps, blogs and articles such as Medium, WordPress, Çizgi Studio, Wattpad, KitUp offer written content that tells the background and side stories of cross-media projects. Live Events and event broadcasts; Comic-Con, live streaming platforms (Twitch, YouTube Live) are used for interactive storytelling and cross-media promotions with direct fan participation. These intermediate platforms enable interactive narratives and cross-media adaptations to reach a wide audience and engage users in a variety of ways. Each platform contributes to the enrichment of products by offering different levels of interactivity and experiences.

2. Video Games

Digital game design is a complex process that brings together the creative and technical aspects of games to enrich the user experience. In this paper, the key elements of digital game design, its applications in educational and entertainment contexts, and its relationship with interactive narratives and cross-media adaptations will be discussed. These elements of digital game design determine how users participate and interact with the game. Digital game design involves a number of critical elements. These elements include game mechanics, visual and sound design, user interface, narrative and world building. Game

mechanics define the rules of the game and user interactions. Visual and sound design creates the aesthetics and atmosphere of the game, enriching the user experience. User interface determines how players interact with the game, while storytelling provides the narrative structure of the game (Plass et al., 2015). Interactive narratives are an important aspect of digital games that increase user engagement. They are shaped by the choices players make to determine the trajectory of the fiction or the novel, history-based narrative. For example, games such as "TheStanleyParable" and "UntilDawn" offer different paths and endings based on players' decisions (Koenitz, 2015). This allows players to engage more deeply in the story and personalize the experience. Cross-media adaptations refer to the telling of a narrative or content across multiple platforms. For example, projects such as the Marvel Cinematic Universe (MCU) and Star Wars bring together various media formats such as comic books, movies, television series and video games. These projects show how content from different platforms complement and enrich each other (Koenitz, 2021). Digital games are used as a powerful tool in education. Game-based learning helps students learn subjects in a fun and interactive way. For example, digital games used in STEM (science, technology, engineering, math) education help students better understand complex concepts (Byun & Young, 2018). These games support students' cognitive development and make the learning process more engaging (Ishak et al., 2023). In the entertainment industry, digital games offer productions that reach large audiences and attract attention with strong storytelling. For example, "TheWitcher" series was developed based on Andrzej Sapkowski's novels and later adapted into a television series. Such projects show how games can integrate their narrative with other media formats (MDPI, 2023).

Digital game design is the basic name for gamification, which integrates the user experience with the structure of fiction, and is an interdisciplinary phenomenon that plays an important role in both education and entertainment. Interactive narratives and cross-media adaptations expand the potential of digital games, allowing users to participate more deeply in the stories. In the future, it is foreseen that such projects will develop further and that users' content consumption habits will be shaped accordingly.

2.1. Disciplines Forming the Complex Process in Video Game Development.

Digital game design is a complex process in which creative and technical disciplines come together to create immersive and interactive experiences for the user. This article will focus on the disciplines, programs and practices used in digital

game design. It will detail the tools needed to create critical elements such as game mechanics, visual and sound design, user interface, storytelling and game world building.

Software engineering, game theory, mathematics; Game mechanics is the specification of game rules and user interactions. Software engineers play an important role in programming these mechanics. Game theory and mathematics are used to achieve in-game balance (SpringerOpen, 2023). Graphic design, digital art, animation; Visual design creates the aesthetics and atmosphere of the game. Graphic designers and digital artists create characters, environments and other in-game elements. Animators bring the movements and interactions of these elements to life (MDPI, 2021). Sound engineering, music composition, foley arts; Sound design includes the sound effects and music of the game. Sound engineers create in-game sound effects and ambient sounds. Music composers compose the game soundtracks. Foley artists recreate real-world sounds (SpringerOpen, 2023). Computer science, graphic design, human-computer interaction (HCI); UI design determines how players interact with the game. HCI specialists optimize the user experience, while computer scientists and graphic designers develop the technical and visual aspects of the interface (MDPI, 2021). Writing, scriptwriting, literature; Storytelling provides the narrative structure of the game. Writers and scriptwriters create the story and dialog of the game. Knowledge of literature is used to create deep and engaging stories (Neves & Zagalo, 2021).

2.2. Program and Applications.

Unity is a popular game engine for 2D and 3D games. It uses C# as its programming language and is supported by a large user community. Unity is used to develop game mechanics as well as visual design and user interface. It also has visual design and animation tools. Unreal Engine offers high-quality 3D graphics and physics simulations. With its visual scripting system called Blueprint, it makes it possible to develop games without programming. Unreal Engine is used to develop game mechanics and user interfaces and create high-quality visual designs. Blender is a free and open-source 3D modeling and animation software. It offers features such as modeling, sculpting, animation and rendering. Blender is used extensively in visual design and animation processes. Adobe Creative Suite offers comprehensive tools for graphic design and animation. Photoshop and Illustrator are used to create in-game assets, while After Effects is used for animation and effects.

Adobe Creative Suite is widely used in visual design and animation. FMOD is a powerful sound engine used for game sound design. It enables the integration of

real-time sound effects and music. FMOD is used for sound design and music integration. Visual Studio is a popular integrated development environment (IDE) used for game development. It allows writing code in languages such as C++, C#, Python. Visual Studio is used for game mechanics and user interface development. Twine is an open-source tool for creating interactive stories. It allows to create text-based games and stories without programming knowledge. Twine is used for storytelling and text-based game development. Procreate is a powerful iPad app specifically for digital drawing and painting. It offers customizable brushes and layer features. Procreate is used for concept design and character and environment drawing. ZBrush is software for digital sculpting and modeling. It is used to create highly detailed 3D models. ZBrush is used for character and creature design and creation of highly detailed models. Adobe Substance is a software package for 3D modeling and texturing. It is used to create realistic textures and materials. Adobe Substance is used in 3D model texturing and material creation processes. CLO 3D and Marvelous Designer are software used for digital clothing and textile design. They offer realistic clothing simulations. CLO 3D and Marvelous Designer are used for character clothing design and textile simulations. 3ds Max is a software used for 3D modeling, animation and rendering. It is known for its wide toolset and flexibility. 3ds Max is used in 3D modeling, animation and rendering processes. Maya offers comprehensive tools for 3D modeling, animation, simulation and rendering. It is widely used in the movie and game industry. Maya is used in 3D modeling, animation and simulation rendering. Houdini is a powerful 3D animation and VFX software used especially for procedural modeling and effects. It offers powerful tools for simulations and dynamic effects. Houdini is used for procedural modeling, VFX and dynamic simulations.

Digital game design also brings together many different technologies. Game mechanics, visual and sound design, and storytelling each play a critical role in how games shape the user experience. Successful integration of these elements ensures that games are both educational and entertaining. In the future, it is envisioned that these technologies and disciplines will evolve further, further enriching the user experience of digital game design.

2.3. Design Programs Used in 2D Game Development

Creating assets for 2D games requires specialized design software to develop characters, environments, UI elements and animations. Here are some of the basic design programs used in 2D game development:

Adobe Photoshop is a versatile tool for creating and editing 2D graphics. It is widely used for sprite creation, texturing and various other design tasks. Source: Adobe Systems. (2024). Adobe Photoshop. Retrieved from: <https://www.adobe.com/products/photoshop.html>

Adobe Illustrator is ideal for creating vector-based graphics needed to create scalable game assets. It is widely used to design characters, backgrounds and user interface elements. Source: Adobe Systems. (2024). Adobe Illustrator. Retrieved from: <https://www.adobe.com/products/illustrator.html>

Aseprite is a specialized tool for creating pixel art and animations. It is especially popular among indie game developers for its intuitive interface and powerful animation features. Source: Aseprite (2024). Aseprite. Retrieved from: <https://www.aseprite.org/>

Inkscape is a free and open source vector graphics editor. It is a cost-effective alternative to Adobe Illustrator and is used to create scalable 2D game assets. Source: Inkscape (2024). Inkscape. Retrieved from: <https://inkscape.org/>

Spine is a specialized tool for creating 2D skeletal animations. It allows developers to create complex animations by manipulating a character's skeleton. Source: Esoteric Software. (2024). Spine. Retrieved from: <http://esotericsoftware.com/>

Krita is a free and open source painting program that offers powerful animation tools. It is used to create traditional frame-by-frame animations and supports both raster and vector graphics. Source: Krita Foundation (2024). Krita. Retrieved from: <https://krita.org/>

Pyxel Edit is a pixel art editor designed for creating and animating tiles and sprites. It is preferred for its ease of use and efficient workflow. Source: Pyxel Edit (2024). Pyxel Edit. Retrieved from: <http://pyxeledit.com/>

Affinity Designer is known for its precision and performance in creating vector graphics. It is used to design detailed 2D game assets as a cost-effective alternative to Adobe Illustrator. Source: Serif (2024). Affinity Designer. Retrieved from: <https://affinity.serif.com/en-us/designer/>

Tiled is a powerful tool for designing game maps and levels, so it serves as a versatile tool in both asset creation and game development. Source: Tiled (2024). Tiled. Retrieved from: <https://www.mapeditor.org/>

Procreate is a powerful drawing and painting app for iPad. It is widely used by artists to create game art, concept designs and illustrations and is known for its intuitive interface and robust features. Source: Savage Interactive (2024). Procreate. Retrieved from: <https://procreate.art/>

2.4. 2D Game Development Tools

The process of developing 2D games involves a variety of tools that address different aspects of game creation; from coding and scripting to asset management and animation. Here are some of the most widely used 2D game development tools:

Unity is one of the most popular game development engines, known for its versatility and extensive feature set. It offers robust tools for 2D game development such as sprite management, physics and animation. Unity's Asset Store offers a wealth of resources designed specifically for 2D games. Source: Unity Technologies. (2024). Unity. Retrieved from: <https://unity.com/>

Godot is an open-source game engine that supports both 2D and 3D game development. It has a user- friendly interface and uses GDScript, a Python-like language for coding. Godot also supports VisualScript and C# languages. Source: Godot Engine (2024). Godot Engine. Retrieved from: <https://godotengine.org/>

Construct is a user-friendly tool designed specifically for 2D game development. It uses a drag-and- drop interface and visual scripting, making it accessible to novices and efficient for prototyping. Source: Construct (2024). Construct. Retrieved from: <https://www.construct.net/>

GameMaker Studio is renowned for its ease of use and flexibility in 2D game development. It offers a drag-and-drop interface for beginners and a powerful scripting language (GML) for more advanced users. Source: YoYo Games (2024). GameMaker Studio. Retrieved from: <https://www.yoyogames.com/>

RPG Maker is a specialized tool for creating role-playing games, but it is also flexible enough for 2D games of other genres. It offers extensive asset libraries and an intuitive event scripting system.

Source: RPG Maker Web. (2024). RPG Maker. Retrieved from: <https://www.rpgmakerweb.com/>

Phaser is an open source HTML5 game framework for creating 2D games for the web. It offers physics, animations and input manipulation tools, making it ideal for browser-based games. Source: Phaser (2024). Phaser. Retrieved from: <https://phaser.io/>

Cocos2d-x is a widely used open-source framework for mobile game development. It supports C++, Lua and JavaScript, offering flexibility for a variety of development needs. Source: Cocos (2024). Cocos2d-x. Retrieved from: <https://www.cocos.com/en/>

Stencyl is a tool that allows users to create 2D games using a drag and drop

interface. It is intuitively designed for beginners and includes advanced features for more experienced developers. Source: Stencyl (2024). Stencyl. Retrieved from: <http://www.stencyl.com/>

Tiled is a 2D level editor widely used for creating game maps and levels. It supports various file formats and integrates well with many game engines. Source: Tiled (2024). Tiled. Retrieved from: <https://www.mapeditor.org/>

These tools are used in various aspects of 2D game development, providing innovative solutions in both the education and entertainment sectors.

2.5. Animation Programs Used in 2D

In 2D game development and design, the creation of animations plays a critical role in creating detailed and impressive graphics. Here are some of the main animation programs used in 2D design:

Krita serves as a robust tool for traditional frame-by-frame animations, supporting both raster and vector graphics. It is popular among artists for its wide selection of brushes and animation tools. Source: Krita Foundation. (2024). Krita. Retrieved from: <https://krita.org/>

Formerly known as Anime Studio, Moho combines traditional animation tools with modern bone rigging techniques. With its user-friendly interface and powerful animation capabilities, it is suitable for both novices and professionals. Source: Moho Animation (2024). Moho. Retrieved from: <https://www.mohoanimation.com/>

TVPaint Animation is a high-quality raster-based animation software used for traditional animation techniques. It offers a comprehensive set of tools for drawing and animation, making it ideal for detailed and complex animations. Source: TVPaint Developpement (2024). TVPaint Animation. Retrieved from: <https://www.tvpaint.com/>

OpenToonz is an open-source animation software used for both traditional and digital animation. It offers a wide range of features for 2D animators and has been used by professional studios such as Studio Ghibli. Source: OpenToonz (2024). OpenToonz. Retrieved from: <https://opentoonz.github.io/e/>

Pencil2D is a simple, open-source animation software for creating traditional hand-drawn animations. It is easy to use and ideal for beginners who want to explore 2D animation. Source: Pencil2D. (2024). Pencil2D. Retrieved from: <https://www.pencil2d.org/>

As the field of game development is constantly evolving, both 2D and 3D projects utilize a range of tools that bridge the gap between different dimensions

and artistic styles. This convergence is driven by the need for versatile and powerful software that can manage the complexities of modern game creation, regardless of whether the final product is 2D or 3D. Tools used in both 2D and 3D game development, design and animation processes play an important role in the successful completion of projects.

2.6. Application Areas and Trends

Technologies in video game design and development are constantly evolving. Advanced technologies such as artificial intelligence (AI) and machine learning are making game design and player interaction more dynamic. AI-powered characters, dynamic storytelling and advanced game mechanics enrich the player experience. (Jiang & Liao, 2022).

Cloud-based gaming services and streaming technologies are making games more accessible to gamers. Cloud gaming platforms such as GeForce Now and Google Stadia offer the opportunity to play high-quality games on low-equipped devices (NVIDIA, 2024; Google, 2024).

NFTs and blockchain technology offer new opportunities and economic models in the gaming industry. The tokenization of in-game assets and tradable NFTs create new economic opportunities for players (Catalini & Gans, 2016).

These tools and technologies are used at various stages of video game design and offer innovative solutions in both the education and entertainment sectors.

3. Comic Books

Comic books have long been an important part of popular culture. These works, which first started as printed media, have been moved to digital platforms over time and enriched with gamification elements in this process. Gamification aims to increase user interaction and engagement by applying game mechanics and dynamics to non-game environments, and it is necessary to examine the projects inspired by comics and enriched with gamification techniques, the sectoral effects of this integration and its future potential. Depending on graphic design, where the concept of reality meets with realities in this regard and sweetens the universes of multiple imagination worlds, we frequently encounter illustrations and stylized works. "Comic books are generally known for their rich narrative and visual aesthetics. These features have been a source of inspiration for the game and movie industries. For example, the 'Batman: Arkham' series, inspired by DC Comics' Batman comics, has been a huge success. This game series offered players the opportunity to

explore the dark and complex world of the comics, while increasing interactivity through gamification elements (Dini & Timm, 1999, p. 125)." Similarly, the "Spider-Man" game series presents the adventures of Marvel Comics' popular character Spider-Man in an interactive format, allowing players to feel themselves in this world. These games offer players the opportunity to make decisions and complete various tasks that affect story progression, thus effectively using gamification techniques (Bendis, 2001). Movies inspired by comic books also use gamification elements.

The Marvel Cinematic Universe (MCU) is one of the leading examples in this field. MCU films use various gamification strategies to create a stronger connection with the audience while bringing characters and stories adapted from comic books to the cinema. These strategies include post-credits scenes and ongoing story arcs that keep audiences curious about the upcoming films and constantly engaged with the universe, according to Feige (2012). These techniques allow the story to deepen and the audience to further explore the cinematic experience.

In his book *The Gamification of Learning and Instruction*, Kapp (2012) discusses how gamification techniques can be used effectively in education. He states that materials such as comics can be used to enrich students' learning experiences and increase their motivation by earning rewards through task completion (Kapp, 2012, p. 45). In marketing, brands can increase customer loyalty through gamification techniques using comics. For example, if a brand organizes a campaign about comic book characters and offers customers tasks related to these characters, it can increase brand loyalty (Zichermann & Linder, 2010). The future of gamification in comics looks even brighter with digitalization and technological innovations. With the advancement of virtual reality (VR) and augmented reality (AR) technologies, comics can offer a more interactive experience. These technologies can enable readers to interact with characters in a virtual world or dive deeper into the story (Ryan & Deci, 2000, p. 70). The shift from comics to gamification increases user engagement by providing interactive and dynamic narratives. Games and movies inspired by comic books offer enriched experiences with gamification elements. Gamification, which is also used effectively in education and marketing, will become more widespread in the future with digitalization and technological innovations.

3.1. Game Development, Cartoon Animation and Comic Book Sales Data

The innovations brought about by the digital age have created significant transformations in the media and entertainment sectors. Cross-media adaptations have great potential, especially in the entertainment and media sectors. Such adaptations offer powerful tools to engage users and keep them engaged. Growth

data in the cartoon and animation sectors shows that this field will expand further in the future. It has a wide range of applications in various sectors. Used in entertainment, education, advertising and healthcare, these adaptations strengthen the relationship between producer and consumer and increase market potential. Such adaptations find a wide range of applications in various sectors and create a strong and dynamic relationship between producers and consumers. With the growth in the cartoon and animation sectors, this market is expected to expand further in the future.

The US has a large market share in the game development, cartoon and animation sectors. In 2020, the game development sector was worth 70 billion USD, the cartoon and animation sector 40 billion USD, and e-book and book sales 8 billion USD. By 2024, these sectors are expected to reach USD 90 billion, USD 55 billion and USD 10 billion respectively. This increase is supported by digitalization and technological innovations (YILDIZ HABER, 2024).

Japan is one of the world leaders in game development and animation. In 2020, the game development sector was worth 30 billion USD, the cartoon and animation sector 20 billion USD, and the sale of e-books and books 5 billion USD. By 2024, these sectors are expected to reach 38 billion USD, 28 billion USD and 6 billion USD respectively (EXACTITUDE CONSULTANCY, 2024).

China has rapidly growing game development and animation markets. In 2020, the game development sector was worth 20 billion USD, the cartoon and animation sector 15 billion USD, and e-book and book sales 3 billion USD. By 2024, these sectors are expected to reach USD 28 billion, USD 22 billion and USD 4 billion respectively (EXACTITUDE CONSULTANCY, 2024).

South Korea has a significant market share, especially in game development. In 2020, the game development sector was worth 10 billion USD, the cartoon and animation sector 6 billion USD, and the sale of e-books and books 1 billion USD. By 2024, these sectors are expected to reach USD 14 billion, USD 10 billion and USD 1.4 billion respectively (EXACTITUDE CONSULTANCY, 2024).

India has a growing game development and animation market. In 2020, the game development sector was worth USD 5 billion, the cartoon and animation sector was worth USD 3 billion, and e-book and book sales were worth USD 0.5 billion. By 2024, these sectors are expected to reach USD 9 billion, USD 5 billion and USD 0.7 billion respectively (EXACTITUDE CONSULTANCY, 2024).

The UK has a significant market share in game development and animation. In 2020, the game development sector was worth USD 8 billion, the cartoon and

animation sector was worth USD 4 billion, and e-book and book sales were worth USD 1.2 billion. By 2024, these sectors are expected to reach USD 12 billion, USD 6 billion and USD 1.6 billion respectively (EXACTITUDE CONSULTANCY, 2024).

Turkey has a growing game development and animation market. In 2020, the game development sector was worth 2 billion USD, the cartoon and animation sector 1 billion USD, and e-book and book sales 0.3 billion USD. By 2024, these sectors are expected to reach USD 4 billion, USD 1.8 billion and USD 0.5 billion respectively (YILDIZ HABER, 2024).

USA

Year	Game Development (Billion USD)	Cartoons and Animation (Billion USD)	E-Book and Book Sales (Billion USD)
2020	70	40	8
2021	75	44	8.5
2022	80	47	9
2023	85	51	9.5
2024	90	55	10

Japan

Year	Game Development (Billion USD)	Cartoons and Animation (Billion USD)	E-Book and Book Sales (Billion USD)
2020	30	20	5
2021	32	22	5.2
2022	34	24	5.5
2023	36	26	5.7
2024	38	28	6

China

Year	Game Development (Billion USD)	Cartoons and Animation (Billion USD)	E-Books and Book Sales (Billion USD)
2020	20	15	3
2021	22	17	3.2
2022	24	18	3.5
2023	26	20	3.7
2024	28	22	4

South Korea

Year	Game Development (Billion USD)	Cartoons and Animation (Billion USD)	E-Book and Book Sales (Billion USD)
2020	10	6	1
2021	11	7	1.1
2022	12	8	1.2
2023	13	9	1.3
2024	14	10	1.4

India

Year	Game Development (Billion USD)	Cartoons and Animation (Billion USD)	E-Book and Book Sales (Billion USD)
2020	5	3	0.5
2021	6	3.5	0.55
2022	7	4	0.6
2023	8	4.5	0.65
2024	9	5	0.7

United Kingdom

Year	Game Development (Billion USD)	Cartoons and Animation (Billion USD)	E-Book and Book Sales (Billion USD)
2020	8	4	1.2
2021	9	4.5	1.3
2022	10	5	1.4
2023	11	5.5	1.5
2024	12	6	1.6

Turkey

Year	Game Development (Billion USD)	Cartoons and Animation (Billion USD)	E-Book and Book Sales (Billion USD)
2020	2	1	0.3
2021	2.5	1.2	0.35
2022	3	1.4	0.4
2023	3.5	1.6	0.45
2024	4	1.8	0.5

Comic books have long been a rich source of inspiration for the gaming and film industries. These adaptations are enriched with gamification elements, providing players with deeper and more interactive experiences. In this section, we detail examples of successful games adapted from comic books, such as "Batman: Arkham" and "Spider-Man", and discuss how these games have been

enriched with gamification elements to enhance the player experience:

Batman: Arkham Asylum and its sequel Batman: Arkham City were inspired by the iconic character Batman from DC Comics. This series of games successfully captured not only the adventures of Batman, but also the dark atmosphere of Gotham City. The game offers players a series of complex puzzle solving, combat mechanics and exploration elements. Players can improve Batman's abilities and gain new abilities. **Mission and Side Missions:** In addition to the main storyline, players can spend more time in the game's world by completing many side missions. **Collection Items:** Players can earn rewards by finding various collectible items in the game world. **Achievements and Badges:** The game offers rewards and badges to players who complete certain achievements.

Critically Acclaimed: The game received high marks from critics and won many awards.

Commercial Success: The Batman: Arkham series has been a huge commercial success, selling millions of copies.

Marvel's Spider-Man is an action-adventure game released in 2018 and developed by Insomniac Games. It follows the adventures of Spider-Man, one of Marvel Comics' most popular characters. The game offers a detailed recreation of New York City and gives players the opportunity to experience both the superheroic and personal life of Peter Parker. Players can freely roam New York City as Spider-Man. **Dynamic Fighting Mechanics:** Players can fight enemies using different fighting styles and abilities. **Story and Side Missions:** In addition to the main story, players can explore the game's world by completing many side quests. **Costumes and Equipment:** Players can customize Spider-Man's abilities by collecting different costumes and equipment. **Critical Acclaim:** Marvel's Spider-Man has received high marks from critics for its graphics, storytelling and gameplay mechanics. **Commercial Success:** The game was a huge commercial success, selling 3.3 million copies in its first week of release.

Nimona is a popular graphic novel written and drawn by ND Stevenson. Originally started as a webcomic, Nimona was later published in print and gained a large following. The story follows the adventures of Nimona, a young shapeshifting girl, and Lord Ballister Blackheart, a notorious but kind-hearted scientist. Nimona's shapeshifting abilities are used as a central part of the gamification elements. **Quest and Side Quests:** As the story progresses, players must discover and use Nimona's different forms. **Collection Elements:** The game allows players to collect various shapeshifting abilities and power-ups. **Critical Acclaim:** Nimona has received high praise from both critics and readers and has

won many awards. **Commercial Success:** The graphic novel became a bestseller and was adapted as an animated movie by Netflix.

Lucifer is based on a character created by Neil Gaiman and published by Vertigo Comics, a spin-off of DC Comics. It centers on Lucifer Morningstar, who has left Hell to run a nightclub in Los Angeles and work as a consultant for the LAPD. **Missions and Side Missions:** Various crimes and mysteries that Lucifer solves while working with the LAPD form the basis of the game. **Character Relationships:** Players interact with other characters to develop relationships and influence the story. **Critical Acclaim:** Lucifer was acclaimed by critics and audiences and ran for multiple seasons. **Commercial Success:** It gained a large audience after its release on Netflix.

Watchmen is a graphic novel written by Alan Moore and illustrated by Dave Gibbons. Set in an alternate history context, the story depicts the world of superheroes during the Cold War era of the 1980s. Adapted by HBO, the series expands on the original story, adding new characters and events. Players explore the perspectives of different characters and make decisions that shape the story. Players race against time and make strategic decisions to save the world. Players solve various mysteries around the world through in-depth storytelling. **Critical Acclaim:** HBO's Watchmen has been critically acclaimed and won multiple awards. **Commercial Success:** The series reached a huge audience and became a cultural phenomenon.

Comics can be used to enrich students' learning experience and increase their motivation. For example, in lessons based on a comic book story, students can progress by completing certain tasks and earn rewards. In marketing, brands can use comics to increase customer loyalty through gamification techniques. For example, if a brand organizes a campaign about comic book characters and offers customers tasks related to these characters, it can increase brand loyalty.

The shift from comics to gamification increases user engagement by offering interactive and dynamic narratives. At this point, cross-media strategies enable a work to qualify and appeal to a much larger audience. Games and movies inspired by comic books offer enriched experiences with gamification elements. Gamification, which is also used effectively in education and marketing, will become more widespread in the future with digitalization and technological innovations.

4. Discussions in the Context of Convergence-Cross-Media

Convergence is the Turkish equivalent of the English word "convergence" and refers to the coming together of various media platforms and technologies in the field of digital media and communication to form a single integrated platform or experience. Cross-media refers to the consistent presentation of a story or content across different media channels and platforms. Both concepts, together with the innovations brought about by digitalization, have radically changed how media content is produced, distributed and consumed.

Convergence refers to the tendency for media content to move between different media platforms and for these platforms to interact with each other. For example, a movie can be consumed simultaneously as a television series, a video game and a mobile app. This enriches the user experience and opens up new narrative possibilities for content producers.

Cross-media allows a story or content to be presented simultaneously and consistently across different platforms (e.g. television, radio, internet, mobile devices). This allows audiences to explore and experience the story from different angles (Dena, 2009)

We live in this informational age, which began with the digitalization of information. These definitions, called "information society" or "network society", are terms that belong to the information age. In the information and network society, which has evolved from the industrial society, with the development of technology and changes in social needs, the most curious question is "What is new?". The most important area that will help us find an answer to this question is the information technology revolution that has enabled us to transition to the digitalization of information. This is where the term "convergence" comes into our lives. Convergence, which started with the advancement of digital technologies, is the main driving force of these technological services. The production of content in virtual environments, the access of this content to networks through digital tools, and the acquisition of meaningful information through the resulting data are the basis of this structure. We can say that convergence begins at the intersection of content, network and data (Demirci, 2006)."

4.1. Convergence Applications in Animation and Game Development

Animation and video games are two of the most important application areas of convergence and cross-media concepts. These two forms of media extend the boundaries of digital narrative by offering interactive and immersive experiences to audiences and players.

Animation is a powerful tool for visual storytelling and can be used on a variety of platforms in the digital age. For example, CGI animated films such as "X-Men Origins: Wolverine", for example, has achieved great success by successfully adapting comic book aesthetics and narrative to the animated form. Animation can also be used in education and marketing. In education, animated course materials attract students' attention and make learning more effective. That is to say, when we think of animation, we should not only think of stylized works. Animated films created with different disciplines, close to reality or in accordance with reality, have also appeared on platforms many times

"Love, Death & Robots" (Netflix)

This anthology series features short animated stories in a variety of genres including science fiction, fantasy, horror and comedy. Each episode offers a unique experience with a different animation style and storytelling. The series showcases the creative potential of animation and the convergence between different media formats.

"Arcane" (Netflix)

Based on the video game "League of Legends", this animated series was widely acclaimed for its rich storytelling and visual style. "Arcane" attracted video game fans and new viewers alike and demonstrated the synergy between gaming and animation.

"Castlevania" (Netflix)

Based on Konami's popular video game series, this animated series is characterized by its dark and gothic atmosphere. "Castlevania" deepens the storytelling of the games, offering viewers an expanded universe.

"Star Wars: The Clone Wars" (Disney+)

This animated series expands the "Star Wars" universe, detailing the events and characters that take place between the films. "The Clone Wars" is known for its complex storytelling that appeals to both young and adult audiences. This series is a successful example of the convergence between film and animation (Looper.com, 2023).

"Rick and Morty" (Adult Swim)

"Rick and Morty" is a high-concept animated series that combines science fiction and comedy. The series has a wide audience with its creative storytelling and diverse media references. "Rick and Morty" shows how animation can converge across different genres and platforms.

Video games are the most dynamic form of interactive narrative. Video games

based on comic books offer players the opportunity to actively participate in the comic book world. For example, the "Batman: Arkham" series has successfully adapted DC Comics' Batman character and Gotham City into game form, gaining a large player base. Such games offer players the opportunity to complete various missions and develop characters within complex storylines (Newman, 2013). At the same time, it is well known that there are also the opposite practices, i.e. game-turned-movie, animated or book adaptations.

5. Conclusion

The possibilities offered by the digital age have revolutionized the world of media and communication. The concepts of cross-media and convergence are at the center of this change. Comics, cartoons, animations, video games and gamification stand out as concrete examples of these concepts. The merging of these genres creates interactive and immersive narratives, enriching and deepening users' experiences. Cross-media adaptations allow different media types to come together to create integrated stories and products. The interaction between different forms of media deepens and diversifies the user experience. Comic books have long been a rich source of inspiration for the gaming and film industries. These adaptations are enriched with gamification elements, offering players deeper and more interactive experiences. Successful games based on comic books, such as "Batman: Arkham" and "Spider-Man", offer experiences enriched with gamification elements. These games enrich the player experience with gamification elements such as character development, quests, collection elements and achievements. Narratives in the digital environment offer new experiences for readers, viewers and players, and the evolution of these experiences is made possible by the integration of different media. Animation and video games are two of the most important application areas of convergence and cross-media concepts. Animation is a powerful tool for visual storytelling and can be used on a variety of platforms in the digital age. For example, animated series such as "Love, Death & Robots" and "Arcane" showcase the convergence between different media formats, offering viewers unique experiences. Similarly, video games are the most dynamic form of interactive narratives. Games such as "The Stanley Parable" and "Until Dawn" provide in-depth engagement with the story, offering different paths and endings based on players' decisions. Gamification is an effective way to increase user engagement and involve them more deeply in the story. In education, gamification strategies increase students' motivation, making the learning process more interactive. In marketing, brands

can increase customer loyalty with gamification techniques. By organizing campaigns related to comic book characters, they can offer customers a variety of tasks and increase brand loyalty.

The shift from comics to gamification increases user engagement by providing interactive and dynamic narratives. Games and movies inspired by comic books offer enriched experiences with gamification elements. Gamification, which is also used effectively in education and marketing, will become more widespread in the future with digitalization and technological innovations. Cross-media has a wide range of applications in various fields such as entertainment, education, advertising and health. In the entertainment sector, projects such as the Marvel Cinematic Universe (MCU) attract users by offering integrated stories across various platforms such as comics, movies, television series and video games. In education, digital games and animated course materials capture students' attention and make the learning process more effective. In marketing, social media platforms enable brands to communicate more integrated and effective messages to consumers by using various media platforms to promote their products and services. Convergence and cross-media concepts are one of the most prominent features of the digital age. The development of technologies such as virtual reality (VR) and augmented reality (AR) will make media experiences more interactive and user-centered. Blockchain and NFTs (Non-Fungible Tokens) will add new dimensions to the convergence process by enabling the unique and secure sharing and ownership of digital content. In the future, these technological innovations will further enhance convergence and transform media experiences. Successful examples of animation based on comic books illustrate how this synergy can be used effectively. For example, "Spider-Man: Into the Spider-Verse" was a huge success, successfully adapting comic book aesthetics and storytelling into animated form. Such examples show how animation technologies can take comic book stories to a new dimension.

Interactive narratives allow users to actively participate in the story. Such narratives are particularly common in video games and interactive graphic novels. Taking the story in different directions based on users' choices makes the narrative more dynamic and personal. This increases users' engagement with the story and provides a richer experience. Comics can be used to enrich students' learning experience and increase their motivation. For example, in lessons based on a comic book story, students can progress by completing certain tasks and earn rewards. Gamification in education increases students' motivation and makes the

learning process more interactive.

Brands can increase customer loyalty through gamification techniques using comic books. For example, if a brand organizes a campaign around comic book characters and provides customers with tasks related to these characters, it can increase brand loyalty. Gamification is an effective way to increase user engagement and involve them more deeply in the story. Developing societies are also increasingly feeling the effects of convergence and cross-media concepts. With the increasing use of digital media, various projects are being developed in Turkey in line with these concepts. Especially the interest of the young population in digital games and animations increases investments in these areas. The use of digital tools in the education system in Turkey is becoming increasingly widespread. Animated educational materials and game-based learning applications increase students' interest in lessons and make the learning process more effective.

The media and entertainment sector is also benefiting from convergence and cross-media applications. Popular Turkish TV series and movies are available digitally on platforms, reaching a wider audience.

However, there are no examples of convergence among Turkish products yet. It may not be possible to say that there are noteworthy examples, except for movie works inspired by epics and historical events and adapted from books. Animation and game projects based on comic books also stand out as part of this trend. These projects spread comic book characters and stories across various media platforms, allowing users to have a broader experience. "Spider-Man: Into the Spider-Verse" and "Batman: Arkham" stand out as successful examples of comic book adaptations. These projects have achieved great success by successfully adapting comic book aesthetics and storytelling to different media formats. Such examples show how animation technologies can take comic book stories to a new dimension. Interactive narratives allow users to actively participate. Such narratives are particularly common in video games and interactive graphic novels. Taking the story in different directions based on users' choices makes the narrative more dynamic and personal. This increases users' engagement with the story and provides a richer experience.

The success of cross-media adaptations depends on the ability to create a consistent experience across different media formats. This process presents both creative and technical challenges. For example, the challenges faced when adapting comic books to video games and how these challenges were overcome illustrate the complexity and potential of cross-media projects. For cross-media

projects to be successful, it is necessary to ensure consistent storytelling across different platforms and overcome technical and creative challenges. The challenges of adapting comics to video games illustrate the complexity and potential of such projects. If the emergence of new forms of media is considered a matter of time, cross-media and convergence relations are contemporary concepts that provide continuity.

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chapter 5

The Reflections of Comic Books in the Gaming World and the Integration of QTE: A Ligne Claire Analysis

Rahmi AYDEMİR¹

Abstract

For many years, the dominance and categorization pressure of American comic books (Comics or Comic Books) overshadowed the global recognition of comic styles developed in Europe, each with their unique aesthetics. This was particularly challenging for the French comic style known as Bande Dessinée (BD) and the more caricatured Italian style Fumetti. However, the wave of innovation in European comics following World War II began to change this dynamic. One of the most influential developments was the Ligne Claire (Clear Line) style pioneered by Belgian artist Hergé, the creator of Tintin. Characterized by clean lines and bold, flat colors, this style not only shaped the aesthetic identity of BD but also laid a foundation that remains popular to this day.

This study examines the transformation of comics into a distinct art form known as Bande Dessinée (BD), the rise of video games as a medium of artistic expression, and the potential of interactive narratives to transcend the boundaries of traditional storytelling. Special attention is given to the pivotal role of the Ligne Claire style in the aesthetic evolution of BD. The historical context and evolution of these emerging art forms, including comics and video games, are analyzed in relation to their impact on conventional artistic paradigms. Furthermore, the study underscores the potential of these mediums to develop a universal language, offering shared experiences and modes of expression that bridge cultural and artistic divides.

Keywords: Video Games, Bande Dessinée, Ligne Claire, QTE

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Introduction

Art is often seen as a tool for balancing the duality between rational thought and the rigid, almost unbreakable taboos of society. As a manifestation of intellectual and emotional expression, art sometimes represents freedom of thought and creativity in the way required by a civilized society. At the same time, it has been highly regarded throughout history for its role in elevating individuals and societies. This conceptual complexity has made the definition of art a continuously evolving question, debated for centuries. Over time, the boundaries of art have expanded, introducing new definitions as each era brought its own aesthetic understanding and criteria. From Antiquity to Modern Art, the concept of art has often been tied to imitation and representation. Art emerged as a result of artists striving to reflect the world they observed as realistically as possible. For instance, the figurative depictions and abstract patterns found in the Chauvet, Lascaux, and Altamira caves demonstrate that Paleolithic humans had a profound connection with nature and possessed artistic and creative abilities (Williams, 2019:17).

Throughout history, art has not only conveyed beauty but also reflected the values, beliefs, and ideas of societies. During periods like the Renaissance and Baroque, art reached its pinnacle through masterful craftsmanship and a striking realism inspired by nature. The works of these periods often centered on mythology, religious themes, and portraits. Renaissance and Baroque artists meticulously depicted human anatomy and perspective, paving the way for art history to emerge as a formal discipline. By the Enlightenment, reason and logic came to the forefront, and artworks began to represent ideas and intellect more than emotions. Enlightenment artists diligently adhered to classical forms and artistic rules. However, the Romantic movement emerged as a counter-reaction, challenging the rationalism of the Enlightenment. Romantic artists delved into their inner worlds, channeling emotions and imagination into their works to evoke a profound emotional response from viewers. During this period, art gained an unprecedented degree of freedom and individuality, sparking the emergence of new movements.

Movements like Impressionism and Post-Impressionism explored innovative ways to express emotions and atmosphere through color and brushstrokes, proving that art could go beyond imitation to embody ideas and feelings. Thus, the history of art, from the realism and imitation-focused line art of Paleolithic artists in Lascaux to the boundary-breaking movements of Cubism and Dadaism, has been a story of constant change and transformation. By the 21st century,

alongside traditional and well-established forms, the need arose to include new expressions in the artistic lexicon. This brought forth the question of what this new form of art would be. As a reflection of society and the human spirit, artistic expressions such as video, gaming, installation, and comic books have gained wider acceptance, giving rise to the search for a new artistic category—commonly referred to as the Ninth Art.

Yet, much like the enduring debate about the definition of art itself, the concept of the Ninth Art has sparked contention. Disagreements persist regarding what forms should be encompassed within this category. While some argue that these newer forms lack the prestige of traditional art disciplines, others emphasize their equal creativity and significance. Burke, however, remains steadfast in his assertion that comic books, which have revolutionized the cinema industry, as well as video games, should be recognized as representatives of the Ninth Art (Burke, 2015:263).

2. Return Home, Mickey: Bande Dessinée and Ligne Claire as a Form of Cultural Resistance

The figures drawn with charcoal and earth on the walls of ancient caves represent the earliest expressions of line art, while the vibrant, digitally rendered illustrations created on tablets today bridge the past and present, shaping the essence of modern comics. In this sense, it can be argued that comic books largely stem from the traditions of line art. Although comic books have evolved into a massive industry contributing significantly to national economies in the 21st century, their roots can be traced back to the 19th century during the rise of Impressionism. During this time, Rodolphe Töpffer laid the foundation of visual storytelling by presenting his caricature-style narratives in sequential art. Töpffer played a pioneering role in the development of modern comics by combining text with visuals and creating small, detailed illustrations that highlighted the defining characteristics of this art form.

His 1837 publication, *Histoire de Monsieur Jabot* (The Story of Mr. Jabot), widely regarded as one of the first modern comic books, solidified his position as a trailblazer in the medium. This work uniquely combined humorous storytelling with illustrations, marking a significant milestone in the history of comics (Töpffer, 1837b). Töpffer's legacy quickly gained traction, inspiring both European and American artists. His works found widespread acclaim, and in America, they particularly influenced cartoonists such as Richard F. Outcault, whose *The Yellow Kid* (1895) became a landmark in the evolution of the genre.

Comics, as we know them today, began gaining popularity in the early 20th century with newspaper strips in the United States. By the 1920s, iconic strips like Little Orphan Annie and Dick Tracy captured widespread attention, cementing the medium's place in popular culture (Davis, 2023).



Figure 1 : Rodolphe Töpffer's "The Story of Mr. Jabot"

The Great Depression, which left a profound mark on world history and plunged societies into poverty, began in 1929. This era was a lost age for all creative industries, as people desperately awaited a savior. In 1938, amidst this period of economic collapse and despair, Jerry Siegel and Joe Shuster introduced the Superman comic book. This hero, descending from the skies to protect the innocent and uphold justice, became a beacon of hope and strength during dark times. Thus, the Golden Age of Comics began, followed closely by the introduction of Batman in 1939, created by Bob Kane and Bill Finger. Superheroes quickly became the central theme of comic books.

During World War II, this influential medium was also used as a propaganda tool. Characters like Captain America gained fame as virtuous heroes fighting against Nazi Germany. In the second half of the 20th century, the evolution of comic books paralleled societal and cultural shifts. Rising levels of education and accompanying social changes boosted their popularity. Furthermore, political and economic factors, such as the expansion of democracy, the birth of cultural industries, and a growing appreciation for visual aesthetics, contributed significantly to their development. Post-World War II, with the rise of American hegemony, comic books spread rapidly across the globe, becoming an instrument of cultural export. The surge in popularity continued through the 1960s, driven

by creative figures like Stan Lee and Jack Kirby. Their groundbreaking works, including *Fantastic Four*, *Spider-Man*, *X-Men*, and *The Avengers*, played a central role in the industry's growth. These characters embodied values such as freedom, democracy, individuality, and heroism, which were marketed as distinctly American ideals. As a result, they had a profound influence on young audiences transitioning into adulthood.

The 1970s marked a shift in comic book themes, focusing on social issues such as racism, drug addiction, and environmental concerns. Comics thus became a medium for reflecting and interpreting significant societal and political events, cementing their role as an important cultural tool. However, the global dominance of American comics raised concerns in some countries about the overshadowing of local cultures and traditions. These fears were rooted in the aftermath of World War I, as the rise of fascism sowed the seeds of cultural resistance. By the 1930s, symbols of American pop culture, like Mickey Mouse, had gained immense popularity, but they were also criticized by some regimes as symbols of American imperialism and capitalism. European artists and intellectuals often viewed Mickey Mouse as a representation of American lifestyle and values, which they believed were incompatible with Europe's unique cultural identity.

This perspective sparked resistance in countries like Belgium and France, where local heroes such as Tintin, Spirou, and Alix emerged as alternatives to American cultural hegemony. These works, later categorized as *bande dessinée* and translated into Turkish as *graphic novels*, aimed to preserve cultural identity and provide a counterbalance to American models. Known as the Francophone comic movement, this genre became a powerful expression of resistance and an essential part of the broader cultural landscape.

*Francophone refers to a linguistic and cultural group, while *bande dessinée* represents an art form. Originating in France and Belgium, these comics were initially named after the Francophone culture from which they emerged. Over time, those who created *bande dessinée* works came to be identified as part of the Francophone tradition. Today, *bande dessinée* has evolved into a beloved comic style enjoyed worldwide, with artists from diverse cultures and backgrounds contributing to its creation.

In his essay "Mickey Go Home," Pascal Ory argues for a more serious and in-depth academic examination of comics. He frames this cultural resistance as an effort to preserve authenticity and independence through local heroes and narratives (Ivan Jablonka 2014;1). One of the earliest examples of *bande*

dessinée, Tintin, was serialized in 24 parts between 1930 and 1931 in the Belgian newspaper *Le Petit Vingtième*. Despite its problematic depiction of racist stereotypes, with Tintin claiming to bring "civilization" and "progress" to Africans in the Congo, today French-Belgian comics—known in this book by the term *bande dessinée* (BD)—stand apart from their American counterparts. Unlike the familiar visual storytelling style of American comic books, *bande dessinée* distinguishes itself both in artistic style and narrative tone (Fracadactyl 2018).



Figure 2: Hergé's "Tintin in the Congo"
(The Telegraph)

While *bande dessinée* (BD) allows for longer narratives with more panels and greater detail in each frame, comic books tend to be shorter and more concise. In contrast to BD's art style, which is characterized by realistic depictions, intricate backgrounds, and stylized characters, comic books adopt a more diverse artistic range, encompassing everything from realistic portrayals to cartoonish characters. In this context, BD is regarded as a part of both art and literature, while comic books are often seen as part of popular culture, primarily as entertainment and leisure activities. Of course, this perspective does not undermine the artistic value of comic books. However, the fact that BD works are displayed in cultural institutions like the Louvre, receiving the same respect as literary works, is largely due to their themes—while many comic books still focus primarily on superhero narratives, BD's ability to tackle profound themes about the human soul and the complexity of society gives it the distinction of being an art form with deep meanings (Spencer 2024). A key factor in the importance of the Belgian-French format in comic book art is undoubtedly Hergé's "ligne claire" style. This simple, elegant drawing style has played a crucial role in shaping and developing European comic art, inspiring early BD artists much like Prometheus' fire. The term "ligne claire," meaning "clean line," was first coined during a Tintin

exhibition in Rotterdam in 1977, though the style itself had already become synonymous with Hergé's work (Bibliothèque nationale de France 2014a). While some may find this style simplistic and monotonous, struggling to depict emotional complexity or nuance, it is often considered a subform of BD by certain artists and researchers. However, Hergé's ligne claire style is centered on maximizing readability by eliminating any extraneous graphic elements or anything that could disrupt the flow of the story. It embodies a desire for a clean and orderly world where even the slightest disruptive element is softened by the frame. Objects, characters, and decorations are drawn systematically with a consistent ink line thickness. The realism of the decorations, the aesthetic unity of the plans, the simplicity of the colors (which serve primarily a descriptive function), and the limited use of shadows and hatching all emphasize the style's focus on sharpness and clarity. Therefore, it would be more accurate to view ligne claire not as a subform of BD, but rather as a distinct drawing style that is integral to BD itself.

3. The New Aesthetic Perception of Art in the Digital Age: Video Games and Japan's Cross-Skill Sharing

Creative industries have traditionally developed around the axes of craftsmanship and labor-intensive practices, gradually integrating multimedia technologies and establishing close relationships with technology-driven sectors. Walter Benjamin's statement, "New technologies have always deeply influenced the art forms of their time," from his essay *The Work of Art in the Age of Mechanical Reproduction* supports this connection, with comics and video games representing prime examples of this evolution (Benjamin 1969;25). The video game industry, blending new technologies emerging in fields such as computing, multimedia, and the internet, became one of the largest enterprises in the world when Nolan Bushnell founded Atari in 1972, an entity that captivated the global imagination at the time (Lowood 2009;5). By pushing the boundaries of interactive entertainment, video games gave players the opportunity to assume characters, become heroes, create stories, and actively participate in events, taking interactivity to a new level. By 1981, the industry's value had reached \$1 billion, and Atari's dominance in the sector was accompanied by intense competition from numerous similar console firms vying for market share. After World War II, demand for comics, which had reached a peak in popular culture, began to decrease in the United States during this period. Over time, the market, flooded with low-quality and imitation games, lost consumer interest and trust,

and many games, with similar gameplay and graphics, were left to rot in retail warehouses. The failure to offer new and exciting experiences to players led to a tragic decline in market interest, beginning with Atari's withdrawal from the market in 1983 and culminating in the loss of video games' appeal in the U.S. market. In contrast, Japan's comic publishing industry made a significant leap in the mid-1990s, and Japanese animation films, seizing a major share of the declining domestic film industry, developed skill resources that were effectively shared across these industries. The cross-effects of content within creative industries in Japan led to the emergence of shared artistic features among manga, animation films, and video games. Japan's talent-sharing mechanism and Nintendo's pioneering role in transforming the industry into a profitable business model have contributed to the video game industry reaching a market size of \$200 billion today (Aoyama and Izushi 2003;17). Initially attracting player interest with the art and content requirements predominantly seen in comic production, the sector began to create visually rich and impactful games through close collaboration with artists. Iconic games such as Street Fighter II, Mortal Kombat, and Final Fantasy are concrete examples of this collaboration. Yoshitaka Amano, a renowned artist whose work illuminated not only dark fantasy worlds but also the visual aesthetics of video games, became a role model in Japan's early game industry. His work on the 1983 Vampire Hunter D light novel series, followed by its anime film and video game adaptations, and his major contribution to the visual identity of Final Fantasy 2 in 1988, epitomized how manga artists had a pivotal role in the development of the video game industry (Yoshitaka Amano 2024c).

In conclusion, the cross-pollination of content between creative industries played a vital role in the development of video games and their acceptance as an artistic form. Particularly in Japan, the sharing and collaboration of skills across manga, animation films, and video games greatly contributed to the growth and mutual enhancement of these art forms.

4. Integration of QTE and Valiant Hearts: The Great War as a Form of Ligne Claire

Comics and video games are both art forms that skillfully combine visual elements and text to tell stories. In comics, abstract, expressionistic, and symbolic designs play a crucial role in evoking intense emotions. This powerful visual language also appears in video games, aiming to evoke similar feelings. For instance, in the platform game Limbo, wavy lines above a pile of trash imply the

foul smell of the pile. Likewise, steam rising from a pot could symbolize a delicious meal. Such visual depictions help players better understand the character's motivations and more actively engage with the game's narrative. The shared language between these two forms, and the potential for visual novels—interactive digital narratives that merge writing, drawing, music, and gameplay—expand our understanding of this dynamic interaction. In comics, the space between two panels provides an opportunity for the reader to fill in the gap, while visual novels, a form of interactive fiction, blend text-based narration with images, music, and gameplay, raising the question of whether they are games or interactive comics. Some visual novels use Quick Time Event (QTE) mechanics, which resolve this debate by categorizing visual novels as games. QTEs, first introduced in the 1983 laserdisc game *Dragon's Lair* designed by Don Bluth, were later popularized in modern games by Sega's *Shenmue* series. In *Shenmue*, developers used QTEs for both combat and daily activities, enabling players to take actions such as defending or making moves, triggered by specific events or conditions. Game engines use such triggers to initiate QTEs based on location, time, or story points. For instance, a QTE could be triggered when a player approaches a specific enemy or selects a particular dialogue option. These QTEs, which require players to quickly press buttons that appear on the screen, test reflexes and attention, intensifying excitement without disrupting the game's flow. They can range from simple button presses to complex combinations, offering players a sense of control and propelling the story forward, providing a cinematic experience that enhances storytelling.

As previously mentioned, QTEs and comics share a strong connection. Both forms engage the reader or player as an active participant in the narrative, enhancing the drama and excitement. In recent years, some digital comics have also started using QTEs to enhance reader interaction, triggering specific events or altering the course of the story. For instance, in *Backstagers*, readers are presented with a QTE to decide which path a character will take, while *The Walking Dead: Our World* mobile game uses QTEs for combat against zombies (Walking Dead Wiki 2024). Although QTEs have become increasingly common in games, similar techniques have been employed in non-digital comics to create similar effects. To depict rapid and instantaneous actions, comics often use sharp angles, dynamic lines, and minimal panels, drawing readers into the excitement of the event while reflecting the time pressure and urgency typical of QTEs. Similarly, visual effects such as speed lines, dust clouds, and blurring objects

highlight movement and sudden changes, mirroring the time constraints and decision-making urgency present in QTEs.



Figure 3. The depiction of speed in comic books (JohnRuzum.com)

The use of onomatopoeic text bubbles like "BOOOOM!" or "CRACK!" mirrors the sensory feedback felt in quick-time events (QTEs) by imitating the sound and impact of actions. While comic books utilize multiple panels on a single page to depict simultaneous actions or provide different perspectives, QTE mechanics in games serve a similar purpose by presenting multiple options and outcomes within interactive sequences. In this context, *Valiant Hearts: The Great War* emerges as a compelling case study. This game masterfully blends the *bande dessinée* (BD) style and the *ligne claire* art technique with well-integrated QTE mechanics to deliver an interactive narrative experience. Players engage with diverse mechanics to solve puzzles, evade enemies, and keep characters alive using stealth and other skills, all while navigating a deeply emotional story that portrays the horrors of war and the resilience of the human spirit. (Ubisoft Montpellier, 2014). The game effectively utilizes color schemes and character expressions to emphasize emotional depth and the challenges faced by the characters, achieving a powerful storytelling impact. As the war progresses, the tone of the story grows darker and more somber.

The game's aesthetic closely aligns with the *ligne claire* style, characterized by minimal shading, clean and precise lines, and a focus on simplicity and readability. Artists in this style aim to minimize shadows and detailed textures, instead emphasizing clear contours and flat color fields to enhance narrative clarity. The

visual design in *Valiant Hearts: The Great War* reflects these principles, merging artistic and storytelling concerns rooted in BD traditions. In *ligne claire*, every line is sharply defined within the composition. Characters, backgrounds, and objects are often depicted with lines of uniform thickness, creating an orderly and uncluttered visual aesthetic. This minimalist approach ensures the story and characters remain visually accessible, while the absence of intricate textures and heavy shading helps maintain the viewer's focus on the narrative. By employing flat colors and straightforward designs, this style prioritizes storytelling over visual complexity, a hallmark of *ligne claire* artists. Similarly, the visual and narrative language of *Valiant Hearts* resonates with these core themes, ensuring that clarity and storytelling remain at the forefront of the player experience.



Figure 4: *Valiant Hearts: The Great War* (Ubisoft)

The cinematic scenes in the game are divided into two categories: interactive and non-interactive. Developers have brought comic book panels to life within the game by using a camera that pans across the scene to narrate events happening away from the characters, maintaining narrative continuity. In these non-interactive sequences, a narrator's voice conveys the story while simple animations, such as drifting hay or leaves dancing in the wind, enrich the visuals. On the other hand, interactive scenes use Quick Time Events (QTEs) at critical and dramatic moments to immerse players in the unfolding events. These QTEs are triggered when characters face dangerous situations or make difficult decisions. (Huus, 2016). These moments are reminiscent of dynamic comic panels that require the reader—or in this case, the player—to follow a specific rhythm, repeat certain actions, or quickly press different buttons, creating the

sensation of experiencing an interactive comic. In this sense, *Valiant Hearts: The Great War* exemplifies a groundbreaking approach to storytelling by seamlessly merging the aesthetics of comic books with the interactivity of video games. The game's *ligne claire* art style—characterized by clean, precise visuals—is combined with dynamic gameplay mechanics like QTEs, allowing players to become active participants in the story rather than mere observers. This synthesis conveys the tragedy of war through minimalist storytelling, fostering emotional engagement and enabling players to physically experience the events. As a result, the game expands the boundaries of both comics and video games, presenting a new paradigm of narrative art that unites the two mediums with a shared visual and narrative language.

Conclusion

Art, as humanity's most fundamental and ancient form of expression, conveys emotions and ideas, tells stories, and connects us to our roots, even in the deepest silence. Over centuries, it has evolved alongside new technologies and ideologies, pushing boundaries and giving rise to new forms that have become topics of academic discussion. While comics entered the realm of scholarly analysis relatively early, video games—emerging as a new art form in the late 1990s—gained academic attention in the 2000s. This attention has even sparked debates between ludologists and narratologists regarding their nature. These two forms—comics and video games—have converged under the banner of interactive narratives, transforming users from passive consumers into active participants who influence story progression and enjoy unique experiences. In traditional comics, readers follow a predetermined sequence and cannot alter the course of the story. However, the rise of video games has transformed this passive medium into something more dynamic. Comic artists, even before embracing digital formats, employed techniques like perspective, color, and composition to direct readers' focus, mirroring the functions of QTEs in games, which require players to execute button sequences. Among these artistic styles, *ligne claire*, pioneered by Belgian artist Hergé, stands out. Known for its clean lines, minimal shading, and clear colors, this style simplifies storytelling while focusing the reader's attention on key narrative elements. This approach not only enhanced the emotional and rhythmic control of comic storytelling but also laid the groundwork for parallels with video game mechanics like QTEs.

The visual simplicity of *ligne claire* complements the tension, urgency, and rhythm evoked by QTEs in games, bridging the gap between observation and

active engagement. Artists using this style have succeeded in making readers feel the story's flow, akin to how QTEs immerse players in interactive narratives. In modern games, cinematic scenes often utilize multi-panel visuals to streamline storytelling, echoing the clarity of ligne claire and the interactivity of QTEs. This analysis highlights the relationship between comics and video games, demonstrating how interactive narratives unite these two art forms. It also reflects on the evolution of art, showing how traditional media adapt and benefit from new technologies. By focusing on the relationship between Franco-Belgian comics (*bande dessinée*) and video games, this study examines how these two art forms influence each other and how comics have transitioned from a passive medium into an interactive narrative by incorporating game mechanics. Additionally, a case study on ligne claire and QTEs illustrates their convergence in creating a video game experience that connects players more deeply to the story. This fusion of ligne claire's simplicity with the interactivity of QTEs opens new dimensions in visual storytelling, strengthening the bond between the player and the narrative while redefining the potential of both mediums.

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chapter 6

Illustrative Interface Design and Cultural World Heritage "KÖK" Mobile Application Design Example ¹

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Abstract

The World Heritage Committee established by Unesco evaluates historical buildings and natural areas and includes some of them in the World Heritage List. This makes World Heritage Sites very important for country promotion and tourism. Promoting these sites and informing the target audiences about them is very important for protecting and raising awareness about heritage.

Using illustration, which is one of the most effective graphic design elements of creating visual identity, designing user interfaces by combining catchy visual identities created with the common theme of world heritages and mobile applications, which have become a part of our daily lives and one of the easiest ways to reach the target audience, will be effective in terms of promoting these areas.

As of 2024, the Republic of Turkey has 19 World Heritage Sites, 19 of which are cultural and 2 of which are both cultural and natural (mixed) and is a very rich country in this regard⁴. However, when the promotion, visual identification and design studies of these areas are examined, we see that each heritage has many different visual identities. In addition to this, we come across studies that cannot bring all these world heritages together in a visual identity and combine them on a platform under a specific theme to reach the target audience.

¹ This study is derived from the master's thesis of Ardahan Toruk, "An Illustrative Mobile Application Interface Design for the Promotion of Selected Areas in Turkey, Included in the UNESCO World Heritage List", Institute of Fine Arts, Hacettepe University, 2022.

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⁴ <https://www.unesco.org.tr/Pages/125/122/UNESCO-D%C3%BCnya-Miras%C4%B1-Listesi>

Educational and informative applications are used as information and news transmitters. Access to content is the most important factor in these applications, so readability, ease of navigation and search tools are essential⁵. Most of the mobile applications and illustrations produced for the promotion of cultural world heritage have different design languages independent of each other. “KÖK” mobile application, which thematizes some of the World Heritage Sites in Turkey based on a metaphor, creates a collection of illustrations of the heritage sites under the determined theme, and aims to promote and visually identify them by integrating them with an interactive mobile application interface design within the same theme, will be examined in this section.

Keywords: *UNESCO, world heritage, illustration, mobile application, interface design.*

1. Introduction

The World Heritage Committee, which operates under Unesco, evaluates natural and cultural destinations all over the world and declares the areas that it attributes “outstanding universal value” as World Heritage. World Heritage designation makes these destinations very important in terms of tourism and promotion of their region. This situation brings with it the necessity of promoting these destinations and communicating them effectively to target audiences.

Mobile applications, which are widely used in almost every field today, are tools that individuals can easily access with their mobile devices and find solutions to their problems by gaining knowledge on many subjects. Being so easily accessible and widely used makes mobile applications one of the important tools that can be used in promotion.

Illustration, one of the graphic design fields, is one of the best methods that can be used to tell a subject about a theme, reflect the imagined theme and create a visual identity (Toruk, 2022, p.1). Illustration has become increasingly common on digital platforms such as the web, games, mobile devices, television and cinema. The visual content of games for computers and mobile devices includes interactive elements as well as characters and backgrounds, all of which can be designed by illustrators (Brazell & Davies, 2013, p.22). The concepts, principles, platforms and file formats of digital illustration and digital image publishing should be designed for the user in terms of the functionality of mobile

⁵ Cuello, Javier ve Vittone, Jose. (2013). (s.29). “*Designing Mobile Apps*”. Jose Vittone: Almany.

devices. Illustrators are becoming the first point of contact for agencies that want to create visual communication for applications on mobile devices. In addition, illustrators are cultural interpreters (Zeegen, 2020, p.42). In this context, cultural world heritages, which are very important for countries, should be interpreted through illustration to give them a visual identity and world heritage sites should be conveyed to the target audience with an interesting mobile application.

When the mobile applications produced for the promotion of world heritage are examined, it is seen that the applications generally consist of text, photo areas and maps. It is observed that visual identity is not created by combining heritage sites under a theme.

In line with all these inferences, the "KÖK" mobile application, which creates a collection of illustrations by bringing together the world heritage destinations in Turkey with a metaphorical theme and a common design style, and aims to promote the areas by bringing the created illustrations together in the mobile application interface design, will be evaluated by taking the "KÖK" mobile application as an example.

2. UNESCO and the Concept of World Heritage

UNESCO is an abbreviation for United Nations Educational, Scientific and Cultural Organization.

UNESCO:

1. An intergovernmental organization with permanent headquarters in Paris.
2. One of the eight "specialized agencies" recognized by the United Nations General Assembly.
3. A worldwide organization reflecting the common purposes and views of many cultures and many peoples.
4. A means to a single end, the establishment of lasting world peace.

UNESCO's purpose is specific, as stated in its Constitution: "...to contribute to peace and security by promoting cooperation among nations through education, science and culture in order to further universal respect for justice and the rule of law. It is for the human rights and fundamental freedoms affirmed by the United Nations Charter for the peoples of the world, without distinction as to race, sex, language or religion" (UNESCO and You, 1947, p. 62). 16 November 1945: Representatives of 37 countries gathered in London to sign the UNESCO Constitution, which came into force on 4 November 1946 after being ratified by 20 signatories (Valderrama, 1995, p. 28).

The concept known as 'world heritage' emerged in 1959 when Egypt appealed to the international community, represented by the United Nations Educational, Scientific and Cultural Organization (UNESCO), to save a large number of archaeological monuments in Nubia, which was under threat from impending floods due to the construction of the Aswan High Dam (Khirfan, 2016, p.3).

In 1965, the “World Heritage Foundation” was launched to promote international cooperation and protect both cultural and natural sites. However, since both the UNESCO campaign and the World Heritage Foundation failed to create an efficient international protection system,⁵ the UNESCO General Conference decided to adopt the World Heritage Convention on November 16, 1972. The Convention established a formally structured international regime for the protection, conservation and management of the most outstanding manifestations of both culture and nature, providing the necessary financial and intellectual resources and promoting the avoidance of exploitation for economic purposes. This objective was pursued with the introduction of a World Heritage List, which enumerates the properties of states considered to be of “outstanding universal value”.

Humanity and therefore worthy of protection and conscientious passing on to future generations through international cooperation and commitment. The World Heritage Convention led to the establishment in 1976 of the World Heritage Fund (WHF) and the World Heritage Committee (WHC), which represent the main actors in the arena of the World Heritage regime.

In summary, UNESCO’s World Heritage mission is to:

Convince countries to sign the World Heritage Convention and ensure the protection of world heritage;

- Encourage States Parties to nominate properties in their territories for inclusion on the World Heritage List;
- Support States Parties in protecting properties by providing financial, technical and training assistance;
- Provide emergency assistance for endangered sites;
- Help signatories raise public awareness of the protection and preservation of world heritage;
- Encourage public participation in its protection

Heritage;

- Promote international cooperation in the protection of heritage (Ferrucci, 2012).

Like all globalizing arenas, the creation of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the transition to global heritage has only strengthened the interests of the state, as national identity, prestige and recognition of an identity are so strongly tied to it. In fact, the state has remained a particularly intransigent force in all UNESCO's activities due to the nature of the organization (Meskell, 2014, p. 218). More recently, the international protection of cultural heritage has become an integral component of international peace and security, given the tragic record of cultural heritage destruction linked to the perpetration of mass atrocities (Francioni, 2023). Unesco benefits states in the sustainable protection of heritage sites.

Heritage is a modern slogan and is subject to a wide spectrum of attention-scholastic and commercial, serious and sarcastic. The WHC is concerned with material heritage, that is, with that which is inherited by the present generation, either in the form of the natural environment or through the sculptural action of human beings within it. (Artistic heritage, in terms of literature, music or painting, is omitted.) At a practical level, the dual concept of heritage contained in the first two articles of the 1972 Convention resulted from the merging of the two different initiatives mentioned earlier in the Convention. On the one hand, UNESCO, with its practical experience during the 1960s, sought recognition and protection for the world's outstanding historic monuments and buildings (UNESCO, 1970).

For the purposes of this Convention, the following shall be recognized as "cultural heritage":

- Monuments: works of architecture, monumental sculpture and painting; items or structures of archaeological interest of outstanding universal value in history, art or science, additions, cave dwellings and combinations of features:
- Groups of buildings: separate or linked groups of buildings of outstanding universal value in history, art or science because of their architecture, homogeneity or place in the landscape:
- Sites: human artifacts or joint works of nature and man, including archaeological sites of outstanding universal value from a historical, aesthetic, ethnological or anthropological point of view (UNESCO, 1972, p. 1359).

For the purposes of this Convention, the following shall be recognized as "natural heritage"

- Natural features consisting of physical and biological formations, or groups of such formations, of outstanding universal aesthetic or scientific value:

- Geological and physiographic formations and strictly delimited areas that constitute habitats of threatened animal and plant species of outstanding universal value for science or conservation.
- Natural areas or strictly delimited natural areas of outstanding universal value for science, conservation or natural beauty (UNESCO, 1972, p. 1359).

UNESCO's protection of World Heritage Sites was initiated by the Convention for the Protection of the World Cultural and Natural Heritage, commonly known as the World Heritage Convention (UNESCO, 1972), which makes national symbols of 'outstanding universal value' and the property of all (Paganoni, 2016, p. 76). As of August 2024, there are a total of 1223 World Heritage Sites in 168 countries. These heritage sites consist of 952 cultural, 231 natural and 40 mixed (both cultural and natural) assets (UNESCO, "World Heritage List", accessed: July 28, 2024, <https://whc.unesco.org/en/list/>) Turkey decided to become a party to the Convention with Law No. 2658 dated 14.04.1982, the Law was approved by the Council of Ministers with Decision No. 8/4788 dated 23.05.1982 and entered into force after being published in the Official Gazette No. 17959 dated 14.02.1983. With the submission of the necessary documents to UNESCO Headquarters, Turkey officially became a party to the Convention on 16.03.1983. There are 1223 heritage sites declared as World Heritage Sites on the World Heritage List, which was established according to the 1972 Convention for the Protection of the World Cultural and Natural Heritage and determined by the World Heritage Committee (WHS). Of these, 952 are cultural, 231 are natural and 40 are mixed (natural and cultural) heritage sites. Turkey has 21 heritage sites in this list, 19 of which are cultural and 2 of which are mixed (Unesco.org.tr, "UNESCO World Heritage List", access: August 2, 2024. <https://www.unesco.org.tr/Pages/125/122/UNESCO-Dünya-Mirası-Listesi>).

3. Promotion of UNESCO World Heritage Sites

In July each year, UNESCO (United Nations Educational, Scientific and Cultural Organization) designates as World Heritage Monuments a number of man-made monuments and natural wonders, selected on the advice of experts and critics from a list proposed by each member country. The selection is based on both the cultural value and universal appeal of the monuments, which are open to all humanity. UNESCO provides technical advice for monument maintenance and repair (Javid and Javeed, 2023, p.3).

World Heritage properties are components of a worldwide boom in cultural tourism. As tourist destinations, they represent their value largely in terms of

historical experiences and culture (Albert and Ringbeck, 2015, p.137). World Heritage tourism has become an important sector of the tourism market. The importance of World Heritage has been engraved in human consciousness by expanding the scope of national and international tourism to include World Heritage sites. Therefore, tourism offers significant potential for the dissemination of the concept of World Heritage (Albert and Ringbeck, 2015, p.137). It is obvious that UNESCO values are very important touristic supply sources for the tourism sector. These values can be made much more important destination centers for policy makers in the field of tourism. These values, both abstract and concrete, contain very important potentials especially for our country in terms of alternative tourism. UNESCO cultural heritage values must be transformed into tourism values with various projects in order to increase tourism to 12 months, to increase income-raising activities, to use information technologies as a tourism development tool, to implement new policies and projects, to provide concrete and realistic tourism mobility, to produce high value-added tourism products and to create a high-income tourist profile (Karaman, 2016, p.19). In this context, it will be very important to produce projects by using information technologies to promote heritage sites and thus reach the target audience.

According to comScore (2016), in 2016, mobile applications became the primary means of accessing the internet, representing half of the total digital media time spent. Applications are the fuel that drives the growth and usability of mobile. They allow individuals to perform new digital tasks such as playing games, posting Facebook statuses, engaging messaging conversations, listening to music, watching videos, calling a taxi, checking the weather, reading the news, and shopping with Online and Offline retailers (Pelet, 2017). "Mobile First" doesn't just mean that we spend more than half of our digital time on our smartphones; it also means that publishers, brands and retailers need to think about their digital interfaces for mobile devices first. (Pelet, 2017) From this perspective, mobile applications will be an effective method to reach the masses for the purpose of promoting World Heritage Sites.

Keeping an eye on the declared values of the UNESCO World Site, qualitative analysis has been applied to the types of linguistic evidence available on digital platforms through which a particular place is described and experienced, from institutional websites and tourist information sites to social media and mobile applications. The textual selection consists mostly of website materials, social media status updates (such as Facebook posts and tweets) and mobile application content (Paganoni, 2016, p. 76).

Some sample applications;

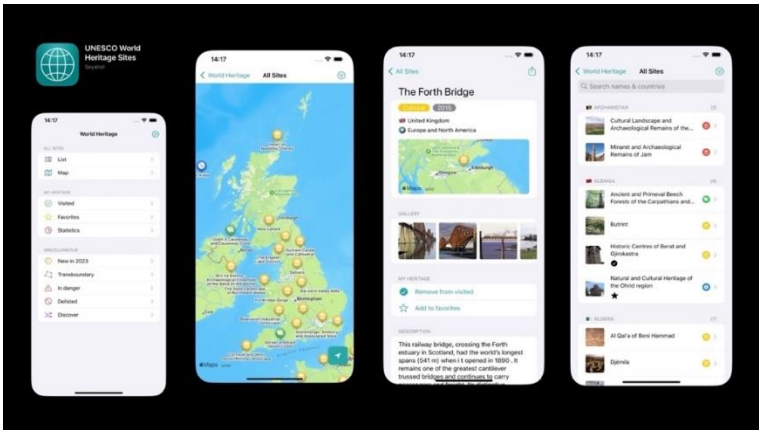


Figure 1. “UNESCO World Heritage Sites”

Mobile Application Interface Images,

Access Date: 15.08.2024, <https://apps.apple.com/tr/app/unesco-world-heritage-sites/id1510826067?l=tr>

The locations of World Heritage sites can be seen on the map in the mobile application called “UNESCO World Heritage Sites”. The user can access the location, photos and general information about the site by touching the heritage site on the map. The application interface design consists of lists, menus, photos, maps and texts (see Figure 1).

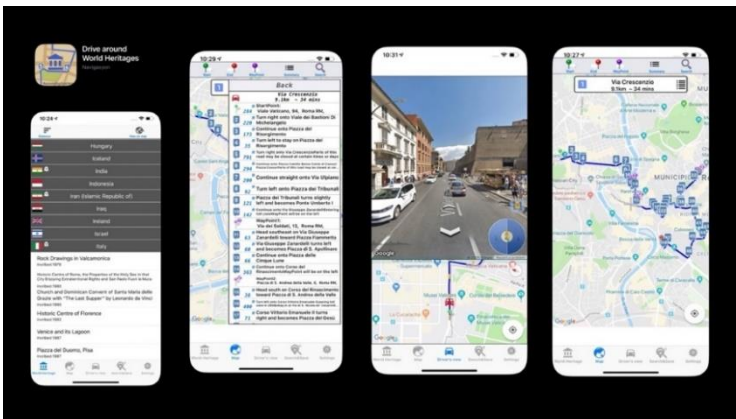


Figure 2. “Drive Around World Heritages” Mobile Application Interface Images,

Access Date: 22.08.2024, <https://apps.apple.com/tr/app/drive-around-world-heritages/id1122820541?l=tr>

The mobile application called “Drive around World Heritages” is a guide application that focuses on access to world heritage sites. The application provides access to directions that allow users to drive between world heritage sites in different countries by selecting them. The application provides very limited information about heritage sites. The interface design consists of texts, list menus, maps and street views (see Figure 2).

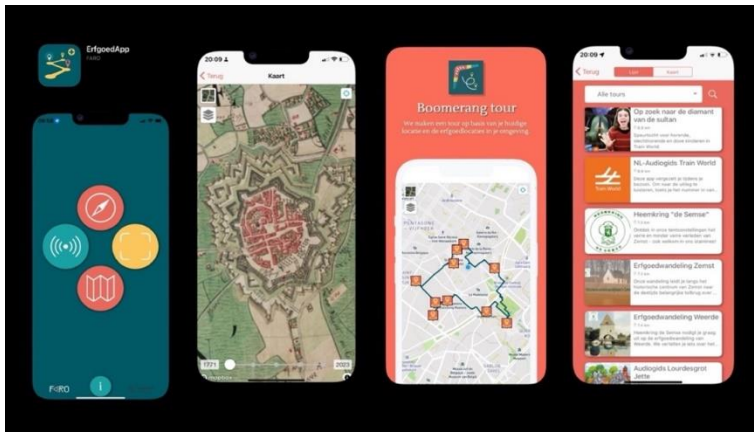


Figure 3. “ErfgoedApp” Mobile Application Interface Images,

Access Date: 09.08.2024, <https://apps.apple.com/tr/app/erfgoedapp/id998845080?l=tr>

The mobile application called “ErfgoedApp” specifies tours that can be done in the area, but does not include any informative or promotional content about the heritage site. Although illustrations are used in the materials used in the interface design, the interface design generally consists of maps and text frames (see Figure 3).

As can be seen in many examples shown and examined, most of the mobile applications produced for the promotion of world heritage and similar purposes appear as travel guides. Informative applications consist of lists, menus, texts and photographs, and there is no design that can have an identity characteristic of the different areas that are intended to be introduced, or illustration studies that will depict these areas.

The use of illustration as part of a publication or in the context of a particular publication medium can be more revealing than what the image looks like. The distribution and accessibility channels (or limitations thereof) were as relevant now as they were then, and it is important to determine, for example, who profits, what the motivations of producers and consumers are, and what the social impacts of illustrated media may be (Doyle, Grove, & Sherman, 2018).



Figure 4. Diagram Illustration Example
(Male, 2007, p.59)

Highly detailed and descriptive cross-sections often provide ideal visual concepts for conveying very specific scientific information. Martin Macrae depicts the ecology and composition of soil in a way that photography or true realism cannot (see Figure 4).

A diagram is an illustration, usually depicting the characteristics of an object, a system, a manufactured or organic process through a narrative that is far from pictorial reality. The visual language may consist of graphic or symbolic representations and does not work contextually unless information is provided or the message is clearly explained. Diagrams are normally associated with educational books: black-and-white illustrations with simple explanations accompanying technical, academic literature. The general tone of these publications is “dry”, overtly scientific. In the contemporary sense, however, the term diagram can be applied to a range of innovative and richly colored images that go far beyond the basics of pure information graphics; illustrated maps, detailed cross-sections, interactive features that can not only facilitate an educational need but also provide a suitable visual alternative for use in advertising campaigns, promotional purposes or editorial commentary (Male, 2007, p. 59). In this respect, the use of illustration will be an effective means of conveying a metaphor to the audience. Considering the intensive use of mobile applications by target audiences in today's technology and the importance of illustration as one of the most effective methods of conveying metaphors, it

would be effective to bring these two concepts together for the same purpose and to produce projects in this direction.

4. "KÖK" Mobile Application

4.1. Corporate Identity and Design Theme of the Mobile Application

All of the world heritage sites discussed in this study are located on the same territory within the borders of the Republic of Turkey. Like different types of trees in a forest, they are permanently connected to the same soil in the same forest with their roots. Based on this metaphor, it is aimed to think of our destinations included in the World Heritage List as trees in a forest or pieces of soil and rocks integrated with these trees and to depict them as they are lifted from where they are located and placed in the mobile application. The illustration composition of each destination is intended to be pictured as if it has been detached from the area where it is located at that moment, raised and taken its place in the scene in the mobile application and brought together with other destinations, which are other parts of the collection. In this direction, underneath all of the compositions, rock fragments that are crumbling and falling and materials belonging to the soil such as roots and vines rising with these fragments are tried to be depicted (Toruk, 2022, p.55-56). In this context, the name of the mobile application was determined as "KÖK" and the theme of the design was supported by the name. In each illustration composition, there is a font design that includes the name of the world heritage to which it belongs and is inspired by ivy and roots in accordance with the theme.

In this context, the design elements used in mobile application interface design and mobile application elements contain common elements in terms of color, form and design language and support illustrative language (Toruk, 2022, p.56). For the "KÖK" mobile application, 8 destinations out of 21 destinations on the Unesco World Heritage list in Turkey were selected without considering any date order or feature, and an illustration composition was created for the application design.

When creating a logo, the designer's goal is to create a simple and durable chain reaction: first it goes on a business card, then it appears in a phone application, on the street, in the subway or on a friend's bag, on a book cover or on a product store bag. In any case, the logo is easily recognizable. In any case, it remains impressive and permanent (Bokhua, 2022, p.15). The designer should anticipate that the logo can be used in all these environments and create the design accordingly.

A successful design may meet the objectives set out in your design brief, but a truly enviable iconic design will also be simple, relevant, enduring, distinctive, memorable and adaptable (Airey, 2010, p.22). Simplicity also makes your design easier to recognize, so there is a better chance of achieving a timeless, durable quality. Think of the logos of big companies like Mitsubishi, Samsung, FedEx, BBC, etc. Their logos are simple and therefore easier to recognize. (Airey, 2010, p.22) This was taken into consideration when preparing the logo design of the “KÖK” mobile application. In addition, the corporate identity design was designed taking into account the illustrative language and metaphorical theme used in the application.



Figure 5. “KÖK” mobile application logo, design theme and logo usage
(Toruk, 2022 p.57)

The word “KÖK” was designed by hand-drawing in the common language with the illustrations to be used in the mobile application without going beyond the theme of ivy and root. Based on the fact that the word “KÖK” starts with the same two letters, the feet of the letter K were designed like roots moving towards each other and the letter K at the end was inverted to create balance. The letter Ö, which is in the middle of the two letters K, was positioned in the middle of the logo. In order to symbolize looking and exploring, the two points of the letter Ö

were depicted like a pair of eyes inside the letter. While designing all of these, the aim was to take advantage of contrast and stay away from details and design a simple logo (Toruk, 2022, p.57). (see Figure 5).

Vector images are preferred in application development because they can be exported at twice their size (or more, or less) without concern for bitmapped pixelation or blurring for viewers using high-resolution devices (Burrough, 2013, p.375). In this context, if we consider that mobile applications will be used on screens of different sizes, the use of vector-based illustrations can be seen as a more effective method.

4.2. Design of digital illustration compositions of destinations

Among the 22 heritage sites in Turkey on the world heritage list, 8 world heritage sites were selected without any chronological order or characteristics. The aim was to prepare an illustration composition series using digital illustration technique, all of which would be original designs according to the theme of the application for these selected heritage sites.

Since all these illustration works are interconnected and designed with a common design style, the same design language will be applied to the heritage areas that will be added to the application later, and thus new areas can be added without changing the design language used in the application design. Many design programs were used while designing these designs created with the digital illustration technique (see Figure 6).



Figure 6. “KÖK” mobile application illustration design phase
(Ardahan Toruk personal archive, October 2022)

List of selected heritage sites whose illustrations were prepared to be included in the design of the mobile application

- 1- Ephesus
- 2- Mount Nemrut
- 3- Safranbolu City
- 4- Göbekli Tepe
- 5- Divriği Great Mosque and Hospital
- 6- Aphrodisias
- 7- Xanthos-Letoon
- 8- Ani Archaeological Site

It is aimed to create an illustration collection with the common features of the illustration compositions of the heritages prepared for the "KÖK" application. In all of the world heritage sites where the illustration composition was created, the symbolic structures belonging to this area were selected and the design was created in this direction.

Among the world heritage sites, the Celcus Library was selected for Ephesus, the King Antiochus I statue for Mount Nemrut, the historical Safranbolu house for the city of Safranbolu, the C structure for Göbekli Tepe, the heritage structure for the Great

Mosque and Hospital of Divriği, the Tetrapylon structure for Aphrodisias, the Lycian Sarcophagus for Xanthos-Letoon, and the Abughamrents (Polatoğlu) Church for the Ani Archaeological Site.

The illustrations prepared with these selected structures were depicted as rising from their location in accordance with the "KÖK" application theme, and at the moment of rising, soil, stone and ivy pieces were combined into a composition to support the effect with the structures (see Figure 7).



Figure 7. "KÖK" mobile app illustration collection
(Ardahan Toruk personal archive, November 2022)

The same design style prevails in all the illustration compositions consisting of World Heritage within the KÖK application. In this context, gray color and its tones were used in all the structures designed with inspiration from the heritages in order to provide depth and dimensioning in the design. In all the illustrations of the collection, the typography, which also has the quality of being the identity of the design, was drawn by hand in an orange color that contrasts with the color of the structure in accordance with the design language, and although the typography is on the structure, a shadow is added between it and the structure, giving the effect of being in the air (Toruk, 2022, p.75).

The roots and backgrounds of the structures, which surround the designs in the illustrations of the structures and integrate with the structure in some designs, are designed with orange and its tones to create contrast and emphasis (Toruk, 2022, p.75).

4.3. Interface Design Stages of Application Work

The layout and appearance of a screen and the navigation of a system affect a person in various ways. If they are confusing and inefficient, people will have more difficulty doing their work and make more mistakes. Poor design can turn some people away from a system permanently (Galitz, 2007, p.5). With this understandable impatience in mind, it cannot be emphasized strongly enough that applications should have simple, easy-to-understand interfaces and user interactions that are easily visible and require little thought. If the user can't pick up an app and figure it out quickly, they are likely to abandon it and never open it again. With so many applications fighting for users' attention, the opportunity cost is too low to spend more than a few minutes trying to understand how a program works (Banga and Weinhold, 2014, p. 35). In this context, a good interface design should be effective enough to attract the user's attention, simple enough not to be difficult to use, and efficient enough to serve its purpose.

"KÖK" mobile application is a mobile application that aims to introduce world heritage sites in Turkey and to provide users with access to a lot of information about these heritage sites. Within the application, users will be able to access general information texts about the heritage site with information pages, a photo area where they can watch photos of the site, and a video window belonging to the site. In this way, they will be able to learn about the site and share it through alternative programs. Users will be able to access information such as contact, e-mail address, website, location information, and full address belonging to the heritage site within the application. Thus, the user will be able to learn about the

site they are curious about without going to the heritage site, and if the user is in the area where the destination is located, it is aimed to act as a guide and an application that will provide promotion of the sites, since they can have general information about this site thanks to the "KÖK" application. They will also be able to learn about the year and category in which the heritage site was registered by UNESCO. While designing all this interaction, it was aimed to prepare an interface design that is user-oriented, easy to understand, and can be used easily and instinctively. By proceeding through the determined theme throughout the design, all heritage areas included in the application were brought together with a common design language (Toruk, 2022, pp.75-76).

Application flow;

When someone feels like they can explore an interface and not suffer dire consequences, they will learn more and feel more positive about it than someone who doesn't. Good software allows people to try something unfamiliar, step back, and try something else without stress (Tidwell, 2010, p.9). Before the design of the application to be designed is completed, the designer should foresee how the users who will use the application will follow the application, the areas where the users will interact on the application and the design process should be progressed in this direction. For this reason, a user flow was prepared for the "KÖK" application. The final interface design of the "KÖK" application was prepared in line with this flow (see Figure 8).

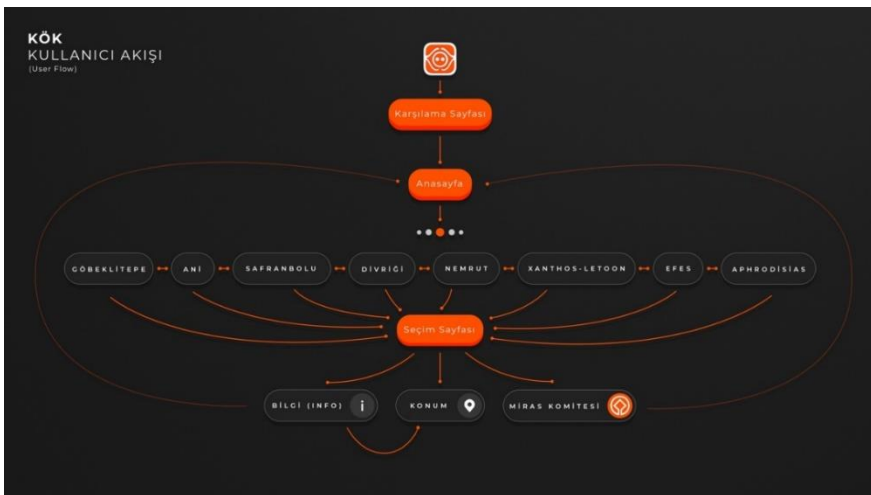


Figure 8. "KÖK" Mobile application user flow diagram
(Toruk, 2022 p.77)

Font;

Sans serif fonts have basic letterforms stripped of serifs and ornaments. Although sans serifs first appeared in the early nineteenth century, their use accelerated in the 1920s. “Form follows function” became their design ancestor, and the functional simplicity of sans serif fonts led many designers to look to them as the ideal typographic expression of a scientific and technological century (Carter, Meggs and Day. 2011, p.269). Because sans serif fonts are generally simpler than serif fonts and scripts, they achieve a clearer visual presence on the web. On screen, very small serifs are defined by an excessive number of pixels relative to the rest of the letterform. Comparisons between sans serif fonts should be made by the designer to ensure that the choices are appropriate for the content. Generally, a well-proportioned sans serif font has a medium stroke weight and a balanced form-to-form ratio. The slightly condensed faces provide more characters per line and thus use less space on the page. Designers can confidently choose fonts that adopt traditional dominant or similar design features, such as Helvetica, Univers and Futura (Carter, Meggs and Day. 2014, p.139). “Montserrat”, a non-serif font, was used in the ‘KÖK’ application interface design in order to use a font that does not tire the user and has a high level of readability (see Image 9).



Figure 9. “Montserrat” font family

Access Date: 12.08.2024,, <https://fonts.google.com/specimen/Montserrat?query=montserrat>

Application landing page;

The welcome page is the first image that the user sees when they open the “KÖK” application by touching it. This page is intended to provide an impression of the theme used in the interface design of the application and to welcome the user with a composition designed in the same design language as the theme, including the application logo. This image will wait on the screen for a while and the user will be transferred to the main screen of the application without any interaction (see Figure 10).



Figure 10. “KÖK” User welcome page
(Ardahan Toruk personal archive, November 2022)

Button panel;

This panel is positioned permanently in the same area within all pages in the application interface design. In this area, there are options buttons that allow the user to return to the previous page, share the current page or information, return to the home page, perform in-app searches, and access the collection. The panel is created using the dark gray, white, and orange colors that dominate the overall application design. The button panel is placed on the screen in a way that is convenient for use with one hand, considering that the application is mobile user-oriented (see Figure 11).

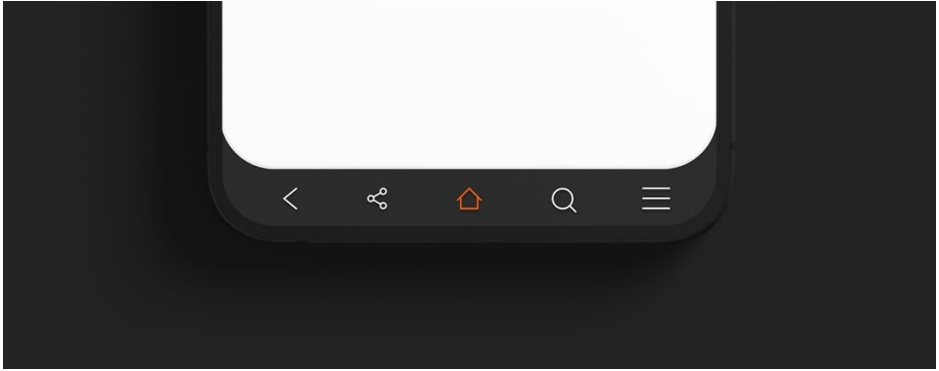


Figure 11. “KÖK” mobile application button panel

(Ardahan Toruk personal archive, November 2022)

Home page;

This area is the first page the user will encounter in the application content. In this area, the user will observe the "KÖK" illustration compositions. The illustrations are positioned in a way that they can be the focus of the viewer, and thus the viewer is intended to examine the details of the illustration of the symbolic structure. (See Figure 12).

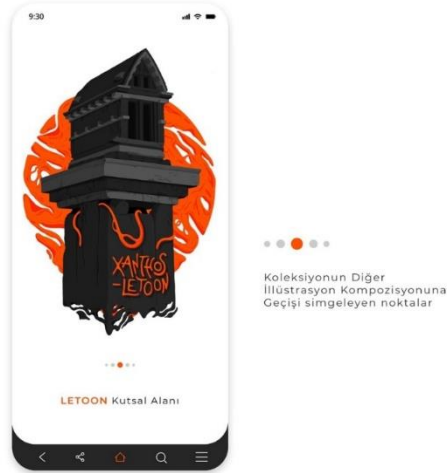


Figure 12. “KÖK” Mobile Application home page displays and dots symbolizing the transition between Collections
(Toruk, 2022 p.83)

The user will be able to change the illustration of a single heritage site, which is the focal point of the interface, by moving it to the right or left, and will be able to examine other illustration compositions in the application. In addition, this page is the page displayed before the selection page, which provides access to other pages of heritage sites. The user will be able to access the selection page when he touches the illustration on the screen.

Selection page;

On this page, the composition grows by positioning itself at the top of the interface. In this way, the typography, which is the corporate identity of the heritage site, becomes the focus of the viewer. In addition, this will inform the user which destination is on the selection page (Toruk, 2022, pp.83-84). (See Figure 13).



Figure 13. Function of “KÖK” Mobile Application selection page icons
(Toruk, 2022 p.85)

There are 3 icons positioned at the bottom of the illustration that serve as buttons. The icon symbolized as the letter i is the button that allows the user to access the information page. The information page is the page where short informative texts about the world heritage site, photographs and videos of the heritage site are located. In addition, the location button on the information page will allow the user to access the location page where they can access the location of the heritage site. The button in the middle will be directed to the location page, which will allow the user to access the direct location information, full address, coordinates and web page of the heritage (Toruk, 2022, p.84). Among these three buttons, the button at the bottom and indicated by the World Heritage Committee logo will provide access to the document registering the inscription of the heritage site on the World Heritage List and the World Heritage Committee page, which will show the category in which the heritage site is classified, along with the dates. The aim of the selection page is to design an easy-to-use page that includes options where the user can select all the operations he/she wants to do about the destination on a single page and access all the data about the heritage site within the application (Toruk, 2022, p.85).

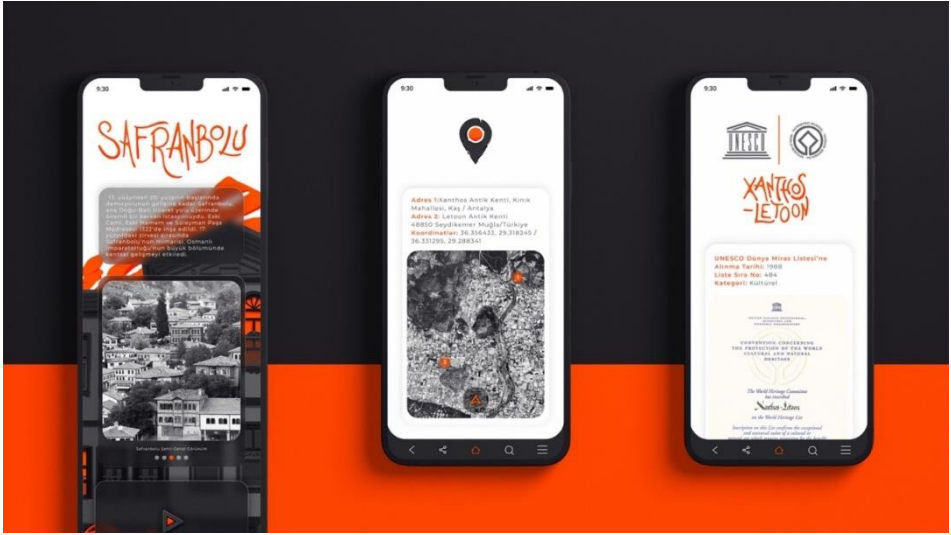


Figure 14. “KÖK” mobile application interface images.

From left to right information, location, UNESCO pages.

(Ardahan Toruk personal archive, November 2022)

Interaction can be provided with the button panel positioned permanently in the interface design on all pages accessed on the mobile application (see Figure 14).

5. Conclusion

The World Heritage Committee established by UNESCO examines cultural and natural areas all over the world and gives some of these areas the title of World Heritage. This title becomes important for countries, considering both the tourism potential of the destinations and the support provided by UNESCO for the protection and sustainability of these areas. In this respect, it will be quite interesting to promote the areas, reach the target audiences with promotional and informative content, and brand the areas that have gained the title of World Heritage by giving them a visual identity.

Considering today's internet and mobile technologies, it is seen that mobile applications are one of the most preferred tools by individuals. This makes mobile applications one of the most effective methods of reaching the target audience. In this respect, using mobile applications in the promotion of world heritage sites will be an effective method.

When mobile applications produced for the promotion of world heritage sites or tourism destinations are examined, it is seen that most of these applications consist of photographs, maps and text frames. Using illustration, which is one of

the most effective methods of telling a metaphorical story, to create a visual identity for these areas will be an effective method.

As a result of all these inferences, the “KÖK” mobile application prepared for the destinations selected from the UNESCO World Heritage Sites in Turkey was examined. In the “KÖK” application, a story was created by combining some of the destinations selected from the World Heritage Sites in Turkey under a common metaphorical theme and an illustration collection of the areas was prepared in line with this theme. Typographic studies aimed to carry the nature of corporate identity were made for the selected areas by adhering to the style of this prepared illustration collection and these studies were combined with illustrations and turned into a composition. Since these compositions, which aim to create a collection and visual identity, were also prepared with a common design language, it was aimed to be sustainable considering that the destinations to be included in the list later would be added in line with the same theme. A mobile application design compatible with these compositions and the theme was prepared. The mobile application was aimed to be a guide mobile application interface design that would promote and reach the target audience by including general information, locations and UNESCO connections of the heritage sites.

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chapter 7

Movable, Pop-Up and Silent Book Applications for Preschool Children¹

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Abstract

Silent books are artistic publications that contain unwritten or partial writing, convey what is wanted to be explained with the help of illustration, and can contribute to the process of opening up to the outside world, especially in the preschool child age group. Movable and pop-up books are works consisting of special pages in which the paper takes form and forms three-dimensionally on the surfaces, and the illustrations are arranged in a way that can complement each other. In three-dimensional books, two-dimensional and static illustrations can come to life on the page, making children feel like they are in the story. Artistic children's publications such as Movable books, pop-up books, silent books play an important role in the development of preschool children. While silent books allow the illiterate child to make sense of the books on their own, Movable and pop-up books attract children's attention with their differences from other superficial books, while strengthening the book and children's bond. The use of original illustrations in books is one of the elements that nourish children aesthetically and cognitively. Within the scope of the study, "Yöktez" academic databases; As a result of the scans made using the keywords "silent book", "anmed book", "pop-up book"; 11 thesis results were reached. The theses selected directly related to the subject were examined and the results and data reached were examined. The problem of the thesis; Problems such as the awareness, importance and suitability of their use as a learning material of pop-up, moving and silent books in Turkey were examined.

Keywords: silent book, movable book, pop-up book

¹ " It is derived from the master's thesis called An Original Silent Pop-Up Book Application for Preschool Children Aged 3-6.

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1. Introduction

Childhood is the period that shows the fastest development and can have a significant impact on the child's future life. Toys, books, publications and other products presented to children for this period have an important place in children's meaning of life and shaping their attitudes and behaviours specific to their future character.

With the field of children's books becoming a common sector, it is possible to find books prepared for children everywhere in Turkey. Book types are not only limited to printing on the paper surface, but can also be encountered as three-dimensional pop-up books, moveable books, silent books, audio books, sensory books. Considering the development of preschool children, reference books that appeal to multiple senses are effective in the child's integration with books at an early age and seeing him as a friend. The artistic illustrations and formal arrangements prepared for the child in these books can be effective in the aesthetic approach of the child in the future.

From the invention of the printing press to the present day, books have shown continuous development. In the modern world libraries, in addition to static and two-dimensional book pages, moving, pop-up books consisting of pages or pieces that can move with the help of various folds and joins have also started to gain importance, especially as learning materials. The function of moving and pop-up books to be invited to use children's fine motor skills encourages the use of multiple senses while emotionally making children part of the story. It is shown in various studies that books that can appeal to more than one senses perpetuate and facilitate learning.

Books, which are educational and learning material, can provide new experiences with the child's imagination by taking on different meanings and narratives through each illustration. With the addition of paper engineering, silent and moving books, which are important for children to gain a love of books at an early age, can be a playmate where the child can exhibit his cognitive, emotional, social and linguistic skills by doing both an interesting playground and qualified activities. When the illustrations and designs used in children's books are made for the child's age group and perception skills, children can benefit from these books more effectively. The techniques used in these books, formal features such as size, cover, binding, paper, page layout, serve as an aesthetic stimulus to the inner world of the child. When children's books made and being made in publishing houses in Turkey are examined in recent years, silent book features are more common in baby books, while books to teach concepts such

as fruits, vegetables, vehicles and animals are given more space in preschool books. Both silent books and silent books with three-dimensional features are not widely used in Turkey. Supporting this critical period, where the foundations of the cognitive, linguistic, social and emotional development of preschool children are laid, with materials such as diversified moving, silent, three-dimensional books plays an important role in children's creativity, imagination and cognitive skills. With the help of visuals, silent books allow children to tell the story with their own interpretations, while giving children the ability to think critically. Preschool books, which support children's infinite imagination, improve their visual reading skills with their unwritten forms. Three-dimensional books provide physical interaction with the book in the learning process of children with their features such as pop-up pop-up pages, moveable chapters and embossed pages. In children's journey of discovering the world, silent and three-dimensional books, accompanied by hand-eye coordination, develop fine motor skills, contribute to children's more interested time than ordinary books. As a result, silent books, three-dimensional books, pop-up books are powerful learning tools that contribute to the developmental characteristics of children. In the spread of these book types, the reach of both educators and families can be increased by improving the printing and preparation processes. Cost-effective production techniques, including modular three-dimensional books in training programs, providing special sections in libraries, establishing special printing houses that can produce for these book types, especially by increasing the number of three-dimensional books that are difficult to make, are among the methods that can be effective in making their access easier. With the use of all these methods, three-dimensional, silent and pop-up books will be able to take an important role in the learning process of preschool children.

The Problem of Research

The preschool period is a process in which many developmental characteristics of children progress rapidly. In this process, the development and support of children's learning activities is directly affected, especially through materials such as diversified books. Stagnant books prepared with traditional techniques are used as educational materials, especially for preschool children. In addition, silent books with story books without text, moving books with paper mechanisms, pop-up books with common features of all 2 book types and three-dimensional elements, stand out as materials that ensure the active participation of children and leave positive effects on the learning process. The lack of

sufficient research on the effects of three-dimensional, pop-up and silent books in the learning process of children, the difficulties and inadequacies in the production process of these books, the dissemination of the use of these books as a learning tool and the emphasis on the importance of the problematic situations of the study.

The Scope of the Research

This study deals with the use of silent books, movable books and pop-up books as diversified materials in the learning process of preschool children (3-6 years old). Answers to the following questions determined within the scope of the research are sought.

- How do silent books, movable books and pop-up books contribute to the developmental characteristics of preschool children as a learning material?
- What are the access opportunities, level of awareness and frequency of use for preschool children, educators and parents to use such books?
- What is the position of silent books, living books and pop-up books in Turkey?

Aim of the Study

The aim of this study is to examine the areas of use of silent books, moveable books and pop-up books for preschool children, their relationship with learning processes, and their role in their contribution to the developmental characteristics of children. Silent books have an important role, especially in the language development of children. Silent books, which gain narrative skills, develop the child's vocabulary in the process of interpreting the visuals and can take on new meanings with their creativity. Moveable and pop-up books are especially developing fine motor skills while enabling children to communicate interactively with the book with engaging paper mechanisms. Within the scope of the study, research was carried out in line with the objectives such as the book types determined within the scope of the study, the effects of children on the language development and expression skills of children, the contributions to the subtle motor and sensory perceptions of children, the effects of the determined book types on critical thinking and imagination in children, especially the importance of the use of these book types in preschool education.

Method

In this study, the importance of silent books, movable books and pop-up books, their location in Turkey, and its use as educational material were examined using the descriptive scanning method. As a result of the scans made using the keywords "silent book", "silent book", movable book", "pop-up" book from Yöktez academic databases, 11 theses results were reached. Theses selected directly related to the subject are included in the study.

2. Developmental Characteristics of Preschool 3-6 Years Old Children

In the development process of the individual, which makes continuous progress starting from fertilisation, the foundations of many developmental features are laid in childhood. Development shows critical features in certain periods as well as individual differences. The preschool period is an institution covering the years before primary school or the educational process from childhood to the next stage of education in cooperation with parents and educators in the fields of development of the individual within the family (Koçyiğit, 2012, p.3). For a child who is in preschool, this period is the first period when they start to show their independence and talents. While everything starts from the embryo in child development, with the researches carried out, the age of 3-6 is an important period because it forms the basic lines of the childhood personality of the preschool period, or early childhood. The interaction of innate genetic characteristics and environmental factors reveals a unique personality in a long growth-development process" (Özdemir et al.,2012, p. 566).

Preschool period is a period when the sense of curiosity and desire to learn is intense in children (Kabacık, Gul, 2021, p.5143). Preschool children try to copy everything they see and hear by wondering. With being a new adventure for them, every day tries to discover everything by touching, smelling, tasting and watching. According to Piaget, individuals who are in the pre-procedure period are self-centred, especially at the age of 2-4 (Kol, 2011, p.5). Especially children between the ages of 2 and 7 can experience themselves by using their own world in different functions with a high creativity without getting stuck in the function of objects.

Preschool education, which is at the first level of education, covers the period when the individual is shaped and changed in physical, psychomotor, social-emotional, mind and language development (Ömeroğlu, Can, 2004, p. 74). Development, which is called the changes that the individual undergoes throughout his life, is a process that includes the child's learning, understanding,

speaking, games, relations with his environment, physical, emotional, social and mental changes.

Although it is not directly possible for preschool children to acquire appropriate social skills spontaneously in life, they need to be brought together with processes that are organised systematically and supported by appropriate methods (Aksoy, 2021, p.392). According to child development studies, the physical environment and social conditions must be ensured in the expected and healthy development of the child. Children in early childhood are very open to stimuli in the environment and these stimuli have an important role in the cognitive development of the child (Ulutaş, 2017, p.603). The child shapes the character he will have in the future with the accompaniment of stimuli with the factors he is exposed to in early childhood.

Cognitive development, as one of the most important developmental characteristics of the child in the preschool period, has an important place in the child's perspective on life. Dreaming skills, ability to establish a cause-effect relationship, reasoning, understanding and interpreting skills and schematic creation, harmonisation and assimilation skills are among the prominent cognitive features of children in this period. The transfer of individuals' indirect and free thoughts using their creativity will enable them to develop sensually and conceptually (Kelekçi Olgun, 2018, p.65). Perception as a cognitive process is the process of taking and interpreting sensory information in the child's approach to concepts and schematising it. Researchers working on perception ability have stated that visual and auditory perception is most effective in infancy (Çukur and Delice, 2011, p. 28).

The pleasure process, which the factors from the child's environment arouse in the child's inner and external world, defines emotional development from its developmental characteristics. In emotional development, the child's ability to express himself, to be understood, to understand the stimuli from the social environment are among the characteristics of social and emotional development. Emotional and social development are too dependent to distinguish between each other. The most affecting emotional development factor is the relationships of the individual with other individuals, that is, his social development. This period, which constitutes the 3-6 age process, covers the period when the child moves to socialisation by leaving the individual, devoting himself to socialisation, and also adding new knowledge to the existing knowledge with his mental development (Alptekin, 2018, p.77). Family is the child's first social circle. The child acquires first social behaviours as a result of his interaction with family

members. Social development is all of the continuous and positive changes that the individual has made throughout his life in terms of social behaviour, emotions, attitudes, values, etc. While children develop from infancy to adolescence, they develop not only mentally but also socially.

While children complete both their physical and social development, language development, each of which evaluates it in separate areas, is an important development area, especially in line with the goals of children's publications. All kinds of toys, activities and books prepared for children can support them in language development. Language development for children is an important task in order to convey their own feelings and thoughts and to adapt to their social environment. Language acquisition is a natural process that takes place subconsciously (Sixty-four G., 2013, p.52). Books are the most important resource to support the language development of the child. Stories, tales, rhymes in books have an individual or interactive effect on language development when selected according to the child's age. The child who spends time with his family or friends thanks to the book can show rapid development in the social, emotional and language fields.

In early childhood, children discover and develop their own physical abilities, understand and respond to relationship dynamics, and encounter and react to external pressures (Özmert, 2006, p.264). Physical development, which includes processes such as readiness, is a child's ability to adapt to objects in the environment. Being able to use these objects is part of physical development. The child's repetition of activities such as cutting, cutting, holding, binding, unraveling, buttoning, kneading, piercing, painting, knitting and passing in play activities supports the development of small muscles and ultimately allows the use of many skills used in daily life (Durualp, Aral, 2018, p.258). In the design of children's books, especially books prepared for babies can be in appropriate sizes for their physical development and features that can be easily translated and grasped. Among the silent children's books called busy books, it can serve the physical development of children through books thanks to the use of physical features from daily life such as shoe tying, velcro objects using and glueing, buttoning buttoning, opening-closing the zipper.

Child development is a long process that needs to be examined in more than one area and has special critical features in every period, can be constantly developing and improved. During this process, every step in which the child realises himself is a part of his future character. Children's books, which have an

important place in child development, are learning and educational materials that provide multi-faceted contributions to the development of children

3. Children's Books in Preschool Period

The preschool period, that is, the 3-6 age period, which plays a major role in the mental development of the child, increases the importance of education, materials and activities to be used in this field. Illustrated children's books are books with more illustrations, specially prepared for preschool children where learning and development are the fastest (Yeşiltepe, Taşkesen, Gül, 2021, p. 53). Illustrated children's books are an important tool for children in early childhood because they enable children to learn, positively affect all areas that support the child's development and allow them to see the world from different eyes (Düzyol, Gülüm, et al., 2021, p.252).

In the process of opening up of preschool children to the outside world, one of the important sources for developing different perspectives and adopting books as friends is children's publications. The aim of children's publications is to produce resources suitable for their ages and periods that parallel all the developmental characteristics of the child, nourish them with visuals, provide empathy skills, and instill a love of books. The importance of education in the development of the individual and society has become an increasingly important research topic. However, the value of early childhood has begun to be understood in recent years (Kaytaç and Öztürk, 2019, p. 7). Experiences related to books in the preschool period are the first step in creating children's feelings and attitudes towards learning to read in later years (Bayraktar and Demiriz, 2017, p. 792). Picture books bring new concepts and experiences to the illiterate child and support all areas of development of the child. Especially in early childhood, it opens the doors to a child-diffect world in colourful pages (Alptekin, 2018, p.78). Thanks to picture books, the child's imagination develops by seeing new concepts in different illustrated ways outside the world he has experienced. The shape of a book is often in the background for adults, and while what is described in it is more important, this situation may be different for children. "A child's listening to a story told by looking at his paintings prepared with the sensitivity of a fairy tale artist draws the child into a very stimulous learning process. Aesthetics can be defined as "the science of aesthetic assimilation of reality by humans" (Özbal, Aydoğan, 2017, p.250). The aesthetic sense for children and the reactions to it begin at a very early age.

In the preparation process of children's books, one of the important points to be considered is aesthetic approaches. Thanks to the books that the child will love, be excited about and that may be interested, the development process is positively affected. Development in aesthetic skills The fact that a baby is more excited about some colours or the fact that the food is more interested in colourful food prepared in a way that attracts attention shows the baby's closeness to the first aesthetic consciousness. Books and toys prepared with aesthetic concerns for children may affect the aesthetic preferences of the child in the future. Visual perception is the most effective compared to the child's other emotional, cognitive skills. Thanks to its features such as colour, line, shape, shape, proportion, harmony, symmetry, children are provided with pleasure (Gültekin, 2011, p.5). The factors that affect aesthetic preferences are the individual differences left by heredity and the environment. These preferences can affect the aesthetic preferences of children from biological, emotional and cultural aspects. Young children from birth to 7 years old are in the first stage of development, which is the most important and rich period for aesthetic development " (Özbal, Aydoğan, 2017, p. 250).

For a child who tries to make sense of life in preschool, a toy is a book that can be his best friend. Picture books prepared for illiterate 3-6 year old children or books with very little writing play an important role in the development of children. Children, who are stimulated by their subject, language and pictures, grow up as book-friendly and book-loving adults. The children's book is first and foremost a work of art. This view should be the basic principle that children's book illustrators must follow. For this reason, children's book artists should be master artists who know the child's world well and know his interests and needs well (Şahin, 2014, p.1311). Children's publishing, as products that carry artistic nature with its illustrations and colours, children's books are one of the most important tools that can contribute to the future life of the child and support the cognitive, emotional, social and many other aspects of preschool children. Qualified children's books are visual and written tools in which children witness the interpretation of events, facts and situations from an artist's perspective (Yıldız, 2017, p.793).

Children's publications produced for children, instead of seeing the child as a potential consumer, should nurture them artistically and provide the best book that benefits him. The main elements found in children's books are language, subject, theme, character, fiction, style and visual elements. There are children's books and features specially prepared for specific age ranges for each child. Since

it can be easily worn out for baby books, or paper books that can be torn as a result of the meaningless movements of the baby, it is more resistant to books made of cloth, felt, plastic or thick cardboard instead of paper books. For children aged 3-6 years old, fairy tales are the period of understanding, listening to and telling stories. For this age group, the books that the family will read should not have long narratives and complex fictions. In the preschool period, children do not get bored of a book easily and may want to listen to the same story again. The child may want to examine this book again and again. For 3-6 year old children, which is called the preschool period, the book is now on the path of a playmate and a phenomenon that he can discover on his own.

While preparing the children's book, writer, artist, psychologist, editor, designer and printing officers should work in cooperation (Kaya, 2011, p. 14) Learning begins with the characteristics of a good print (Treiman, Rosales and Kessler, 2016, p.3). The importance of printing, for example, food packaging prepared for children, chocolate containers, toy boxes, cereal boxes, creates awareness about printing in children with shaped writings. Considering the content of this research, some results have been reached with experimental methods in terms of organising visual elements. According to these results, children prefer bright and light colours over black (Malter, 1948, p.380). Children find the text written on a coloured background more attractive than the writing on the white background (Treiman, Rosales and Kessler, 2016, p.235). Unseried writings are more common in children's books (Walker, Reynolds, 2003, p.106). Font styles are defined as visually remarkable element (Cetin, Bay, 2015). The basic formal features of illustrated children's books can be grouped into seven separate titles. These can be classified as size, cover and binding, typography, paper, page layout, images, imprint information (Demircan, 2006, p.14). In terms of formal features, size is the feature of books in size that the child can easily hold and grasp. Children are more interested in books of different sizes. These books for preschool children should be as light as they are large, and the weight that the child can easily carry. The second most important formal feature in children's books is the cover. They are the covers that are encountered before the inside of a book, give and influence the first impression. On the cover, there should be an illustration appropriate to the subject of the book and the name of the book. Another form feature is the paper used in the book. In children's books, usually the first pulp, non-shiny and durable papers should be used. In children's books, the number of pages used with the development of the child's innate physical skills is increasing. Another important graphic element that makes the book

interesting after the cover is the page layout. Instead of boring illustrations, the child should encounter examples that encourage him to think, and can show him the concepts or objects he sees every day in a different way through creativity. Illustrations are also used to provide integrity and balance in the design. The white spaces created where necessary will facilitate the formation of simplicity and integrity (Kaya, 2015, p.20). In the page order made for children's books, the use of illustration is important whether it will cover a single page or two pages, and if there is illustration, it is compatible with the writing. The most important formal feature of illustrated children's books that should emphasise is illustrations and visual elements. These can be created by drawing or photographing. Images are more memorable than texts. Illustrations used in illustrated children's books should be open to interpretation, understandable, and characters should be more lively instead of stagnant.

Alternative approaches are also used in addition to the traditional, static narrative in visually weighted books prepared for preschool children. As examples of alternative approaches applied by considering the developmental characteristics of children; silent books, pop-up and moveable books, sensory books, books with AR Integration can be shown. All these books play an important role in children's creativity, language development and increasing their learning motivation.

2.1. Silent Books

Silent books are a new book type that feeds the imagination of writing, wordless, sentenceless who wants to tell the story that has started to become widespread today with visual elements, and allows the reader to create his own story instead of presenting the story directly. According to Arizpe (2013, p.2); These sösz (or almost non-verbal) books are interesting in terms of how readers make sense of them. In his study, he refers to the conceptualisation of silent books with studies in the field of education (Arizpe, 2013). These books, which fascinate even an illiterate child with their illustration and visual structure, can be suitable sources for preschool children. The term "quite books" or "silent books" is a type of book that has recently reached our country and is trying to become widespread. Silent books are a type of book that seems to have no significant part when considering the writing and picture element that makes the book a book a book, such as letters, words, sentences. In order to understand this type, book illustrations should be examined first and then the writing that constitutes the complementary whole. The story to be told in silent books can only be formed

thanks to the pictures in it and the imagination of the reader. With individual differences and different experiences, these stories can change for each person. These books, which give visual pleasure with the lines, drawings, colours and textures, are also an indication that everyone can create their own story. It takes imagination to understand and make sense of silent books. The most important talent for a child during childhood is imagination. The more children are given the opportunity to dream, the more imagination can develop.

Silent books are also contemporary and international children's publications. A visual language union opens up to the imagination of children through these books. According to Terrusi (2018, p. 11), silent books enable the learning of visual alphabets while developing the ability to read and critical images. At the same time, the contributions of these books to the imagination play an important role in showing cultural objects and images as well as the meanings, perspectives and forms of different languages in the context of education.

Silent books are books that can easily reveal cognitive products for illiterate preschool children thanks to their unlimited imagination. Children's book illustrations accompanied by imagination can turn into thousands of different words for each child and reach endless variety. There is no single story in silent books. Each child has a unique story to create with their own life experience. With the help of pictures and visuals, many fictions and stories can emerge from the book. Silent books contribute to the language development of preschool children. From a cognitive point of view, the child's production of a story by looking at the illustrations reinforces the child's sense of self-confidence and the sense of achievement. Silent books can nurture children's creative aspect by travelling to their imagination, and develop their ability to construct and predict.

The use of silent books in preschool children has many advantages. Looking at these advantages, it can be said that the most important of these is the development of language and communication skills by feeding children with original visuals. Children who interpret the visuals with their own words improve their vocabulary in the process of expression. Silent books are shaped from the child's own point of view, with different meanings for each child rather than a single meaning. From this point of view, silent books increase children's creativity and affect their imagination. Children can gain critical thinking and problem-solving skills by combining the images in books and establishing a cause-effect relationship. Children who focus on visuals instead of crowded texts can also positively affect their attention and visual perceptions.

Since silent books are types of books that require active participation, they require more involvement and guidance by parents and teachers in their early days. These books can be a tiring endeavour for adults and children who do not know how to use them. Silent books can come to life with a cognitive process. Silent books are a preferred material in terms of interactive reading experience, universal value for children who speak different languages, carrying artistic values adorned with visuals and being an effective learning material especially for children experiencing speech delay.

2.2. Movable and Three-dimensional Books

From the invention of the printing press to this day, books are showing continuous development. At the point reached as a result of the historical adventure of books in the modern world, pop-up (three-dimensional) and moveable books begin to be seen widely along with static and two-dimensional pages. In these books, three-dimensional and depth illustrations prepare a visual scene by applying various combining and folding methods on the page. Moveable books are the totality of paper engineering, that is, the pages created with the help of various folds and joins of paper. These books, called three-dimensional books or pop-up books, have moving pieces that contain illustrations and enrich the meaning of images (Wigan, 2012, p. 252).

Moving books are books with independent pieces of pages that are manually moved by the reader or that can automatically move spontaneously when the pages are opened (Yellow, 2015, p.15). The fact that there are hidden details and pieces in the books in this way increases the reader's interaction with the book. He also gamifies the book. Usually, characters or objects are formed from the piece by adding another piece of paper to the characters or objects on a scene or space illustrated in these books. Three-dimensional books are also called "open books", "three-dimensional books", "toy books" or "action books" and are generally included in the story books category (Erdoğan, 2019, p.3).

Pop-up books, which we are also referred to as three-dimensional books, could not show much development in Turkey, but they have a very rich history in the world literature. Most of the three-dimensional books published and offered for sale in Turkey are books produced or designed in foreign countries. Recently, with the increase in interest in these books, studies have started to be carried out in this field in Turkey. Pop-up and moveable books for preschool children become very interesting thanks to pages that have gained a different dimension. Two-dimensional, static illustrations in pop-up books come to life on the page,

making the reader feel closer and closer to the event. Moveable books have been used for many different purposes for about 800 years and attract the attention of people of many different ages, cultures and education levels (Sarı, 2015, p.15). Most of the moveable books made until the 18th century were produced for adults (Keş and Sarıca, 2014, p.271). Especially thanks to these books, the research in which it is produced for fields such as astronomy, anatomy, medicine and mathematics that are difficult to understand can be reached. Apart from technical subjects, three-dimensional books are widely used today in stories and for children to attract attention, entertainment and education. It can only be seen as a disadvantage that it is more expensive than two-dimensional books. For preschool children, these books offer an interactive option thanks to books that are different from static books, offer them different angles and dimensions, and have mechanisms that can move.

In the production of three-dimensional books, the author and editor collaborate with the paper engineer on the movement of the elements to be used in the book after deciding on the subject. The paper engineer designs how paper can be cut and folded to create specific effects. The paper engineer's first job is to design the elements that will move in the book, including the cut pieces. The paper engineer must fold, cut and glue the items and prepare the prototype study for approval. The page-by-page understanding of the moveable parts of these books is put together on a prototype made of a white paper model. The first prototype is an important element for the examination and evaluation of the editor and paper engineer. Glueing, paper movement, changes in wings or folded elements are evaluated at this point. In order to produce the paper engineer book, it must first produce a digital file or other template that will allow the printer to create moulds to produce moving paper elements. Compared to other books, the production of three-dimensional books requires not only the printing stage, but also manual labour. Many people are responsible for the design of these books. The book pieces compiled during the printing process are finally glued to the points determined in the design by hand and combined with more than one person.

Most of the three-dimensional books are produced in countries such as the Far East, China and Thailand and are offered for sale in our country. As Arifoğlu (2019) stated in his research, there are not enough production opportunities in the field of three-dimensional books in our country. Paper engineering is also the art of mechanising paper. Paper engineering is not just three-dimensional mechanisms. At the same time, the pull-push mechanisms used in moveable

books, wings, rotary discs are the methods used by the paper engineer to combine with illustrations. In these methods, there are mechanisms by which the reader can move himself instead of a three-dimensional form when the page is opened (Barton, 1998). Especially three-dimensional books can convey conceptual and spatial thinking in children with the features of the pages they contain.

When the situation in Turkey is examined, it is seen that the concept of silent book is the subject of thesis studies in 2022 and after. In the studies, silent books have been the subject of five different theses. Studies have been carried out on issues such as the examination of silent books in the context of visual communication, their effects on early literacy and narrative skills, their role in language acquisition, in the acquisition of visual reading skills, and the suitability of the characters they contain with design principles. Erfidan (2024) examined silent books in the context of visual communication, and the silent book samples first point to the book "A Birthday" illustrated by Behiç Ak in 2006. He found the traditional illustration techniques used in this book more suitable for preschool children. As a result of his study, he showed silent books as materials that are a tool that collect children of different countries, ages or races under the same roof and can benefit children who do not read or have language disabilities. Since there is not enough information about the silent books by the society, the parents and teachers should be trained before these books are read, and that the silent book expression on the book covers can be included in a more detailed and informative way, and the instructions in the books as a recommendation. According to Sağlam (2023); Character designs used in children's books, when used consciously together with design principles, provide the emergence of aesthetically high-valued and more qualified works. While books with high artistic value nourish children's imaginations more effectively, books made in accordance with their target audience are considered to be more productive. Taşkın (2024) revealed that silent books are a tool that offers children with a rich interpretation experience in the exchange of ideas in the findings of his thesis on the effect of silent books on language acquisitions. Compared to the time children spend with other illustrated and written books, he reached the results of commenting and interacting more by asking more questions during the silent book reading process. Atasagun (2022), in the silent books study in the context of visual literacy, emphasised the importance of silent books in the language acquisition of preschool children, and prepared a thesis that was one of the first researches in Turkey. As one of the conclusions he reached in his study, he

determined that silent books were 22.72% of whom a pre-school teachers had not yet encountered or did not know about their usage areas. According to the results obtained from the study groups, it was concluded that visual literacy was used in the reading of silent books. As a result of the study, it is recommended that the use and promotion of silent books should be popularised and visual literacy education should be given to all individuals, especially teachers. Bayraktar (2022), in his study on the silent book reading skills of preschool teachers and parents, showed the difference between narratives by having the same silent book interpret the student, parent and teacher. He emphasised that silent books are the material that supports children's creativity and the need to express their imaginations freely through these books without any limitation.

Looking at the theses in which the name of a three-dimensional book is mentioned, in 2010, which can be considered one of the first studies, a study was carried out in which three-dimensional book illustrations were examined in the creativity of first-dimensional primary education students. In his thesis study in Uygun (2010), he defined three-dimensional books as an original material for classroom teachers and painting teachers outside the moulds in accordance with the theory of multiple intelligences. Emphasising that influential materials such as three-dimensional books are not found sufficient examples by Turkish publishing houses and by Turkish illustrators as one of the problems, he showed that our cultural values, riches, jokes or epics are not in such books or postcards as a problem.

Thesis studies called moveable and pop-up books have been conducted since 2011 and there are four separate thesis studies. In these studies; the role of moving and pop-up books in visual arts education, movable books for preschool children, a pop-up book application for the introduction of Kütahya province, transmission of historical trees from generation to generation via three-dimensional pages and design problems in pop-up books were examined. Erdoğan (2019), in his thesis on mythological story-themed pop-up book design, showed that the mathematical and logical design of paper offers students an interesting experience opportunity and the positive effects of this reflects on the course process. He came to the conclusion that extraordinary methods are effective in conveying a complex subject such as mythology to the students. He argues that although pop-up and movable books are more costly compared to other books, they can be an effective learning material with a few technical analysis plugins. According to the results of his thesis study, which uses 3D pop-up book techniques and with the function of introducing historical trees, Sari

(2015) argued that pop-up books activate the sense of curiosity and reveal the questioning aspect of children. At the same time, it shows that there is an approach that will raise awareness in the field of learning with the aesthetic feelings created by the landscaping of trees and the combination of three-dimensional books in children. Tuncali (2011), in his thesis study titled *Design Problems of pop-up books*, argues that the spread of electronic media should be popularised with forms that do not experience in the digital environment, such as three-dimensional and pop-up books, where they have acquired new dynamic forms, as a result of the problems arising from the spread of printing publishing in the background. He stated that such books are artistic works that nourish children's imaginations, create a new playground for them, and activate the sense of curiosity. He showed that these books were not widespread as a problem. Uygun (2010), in his thesis on the contributions of three-dimensional book illustrations to improving the creativity of students, students were offered the opportunity to experience three-dimensional book making techniques during the course. In the research, a solution that reduces practicality and cost was sought.

Three-dimensional, moveable and silent books have become the subject of research and thesis topics and have gradually gained importance. The replacement of Durağan, uniform books has made these books artistic works that will make positive contributions especially to preschool children.

3. Conclusion

Preschool illustrated children's books allow children to make sense of life, develop different thinking skills, and explore their inner world. It helps children to better understand abstract concepts while developing abstract and concrete thinking skills. As in every story, children's stories have introduction - development - conclusion sections. The child following this sequence in illustrated children's books develops the skills of question-asking, cause-effect relationship. Preschool illustrated books are very important for children when they frequently ask questions in line with the child's curiosity and when they have more social relations with their environment. In these books, the child has the opportunity to explain himself, listen and expand his vocabulary. While the pictures convey the feelings and thoughts that cannot be conveyed to the child with words, they also contribute to the development of children's sensory perceptions.

It attracts children with the characters it contains in children's books. Illustrated children's books are effective for children to recognise the society they are in and to look at it from other angles. Apart from the aspect of the book showing social events,

the book is a friend who can spend time socially together. Reading a book with the child's parents or friends strengthens communication. The child-book relationship, which was strengthened in the early period, is a preparation for increasing the child's love of reading and writing in later ages. Preschool children are very interested in three-dimensional books. For children who are still of play age, 3-6 year old, the book can attract their attention more when it turns into a fun form. They can see this book as a game tool. Three-dimensional books can be effective in children's better learning.

The fact that we encounter silent books less can show that the importance of silent books and the effect of children's language development and imagination cannot reach the desired point in Turkey. At the same time, it is very difficult to reach moveable silent books as a synthesis of moving and silent books. In the field studies carried out, a variety of three-dimensional books and a very small number of silent books were found in any book house, but a moving silent book example with both together was not seen at book sales points in Turkey. No books published for pop-up production techniques have been seen in Turkey.

The sectors serving in this field in Turkey, the printing houses that produce these books, the units that provide education and training for the design and production of children's books in our universities are not enough. This causes the production of these books to not be widespread. There are not only prominent printing houses in three-dimensional bookmaking. In the process until today, if we look at the historical adventure of book design, while the importance of pop-up and silent books in the world increases and in order to keep up with this rapid development, innovations suitable for this purpose should be increased in our country.

As a result, when examined, it is seen that while there are many children's books in which the article are available at online and physical sales points in Turkey, silent books have not yet reached the expected production level. Almost most of these books belong to foreign authors and illustrators. They are sources that are translated and offered for sale in Turkey. It is seen that the resources produced by local publishers and designers are quite limited. There are still existing educators and parents who do not understand the importance of silent books and how to use them. In these books, instructions should be included and informative studies explaining their use should be included. Three-dimensional books should have been popularised and included as easily accessible works, especially in preschool classrooms.

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chapter 8

Transforming Stop Motion Animation, an Interactive Design Process, into Interactive Narrative¹

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Abstract

An interactive design process is necessary for an interactive narrative. In order for the target audience to be an active viewer, the importance and impact of visual integrity is great. In order for a narrative to be interesting and interactive, it provides a visual integrity and reaches the target audience, support is received from certain visual art disciplines. From graphic design fields; compatibility between visual effects software of illustration and animation plays a key role in shaping interactive narratives. It is possible to turn the effect of color, texture, brush shape combinations of digital illustration into stop motion animation with the cut-out technique by taking the output in the design process. The most distinguishing feature of the stop motion technique from other digitally produced animation techniques is that the image moves in a twitchy manner. In “cut out”, one of the stop motion techniques, it provides an advantage that it can effectively move in accordance with the designer's story in situations such as light, image, movement, etc. In this section, the development process of animation and the importance of creating an interactive animation through stop motion examples are discussed. The interactive design production of the application work offers a unique experience to both viewers and designers.

Keywords: graphic design, stop motion animation, illustration, cut-out, interactive narrative.

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1. Introduction

This study aims to emphasize the design importance of presenting stop motion animation into an interactive narrative, enriching the story experience by transforming the viewer into an active participant. This transformation aims to offer an innovative and dynamic narrative where user preferences influence or direct the story flow. In this way, it will both involve users in the creative process and achieve a deeper level of interactivity. Without interactivity, audiences can remain passive listeners in any narrative. In order for a subject to be better understood, the design needs to be engaging, making it easier to communicate with the audience whose attention is focused on the narrative. The suitability of interactive narratives for the target audience depends on the design discipline and process used in the narrative.

Animation encompasses an extraordinarily broad set of techniques and practices and therefore constitutes an equally diverse field of study (Ratelle et al., 2018, p. 8). Interactive narrative is the most ambitious art form that exists today because it combines traditional narrative with visual art and interactivity (Meadows, 2002, p. 11). Such narratives maximize interactivity by making the viewer or user a part of the story.

A design that combines the diversity of animation and the inclusion of visual arts in the interactive narrative can be highly engaging for the target audience. It is natural that interactive narratives, such as video games, contain imagery. Narrative is not limited to text. The narrative is neatly transferred to the text, but the text is close to the image and an image can be a kind of “wordless text”. The relationship between text and image now ranges from complementary to competitive. Magazines, television, the internet, newspapers, dashboards, money, clocks, watches, comics, packaging, advertising, clothing, maps, games and even frequent e-mails provide examples of the juxtaposition of text and image. The interpretation of meaning is what makes reading a story worth the effort (Meadows, 2002, p. 33). Visual elements are therefore an important tool to enhance the impact of the story and activate the audience. The first step in developing an animation idea is to write a script, followed by planning the character and location design of the movie, and then the sound effects.

This is where the visual element comes into play. In the visual narrative, certain animation techniques are used to bring still objects into motion. The first stage of developing the idea for animation is to write a script and then work on the task, which should start planning the look of the movie, the design of the characters and most importantly the sound for the movie. Animation is a very different

process from other filmmaking activities, with the main differences being that the sound track is recorded first and most of the editing is done during the planning stages. Each stage helps to visualize more precisely how it will work. Each of these planning stages can be done with the idea (Shaw, 2004, p. 36). These processes of animation require planning from a design point of view, so that an impressive experience is offered to the audience.

Whether it is a graphic designer developing a website, a product designer creating a new app or a director producing a new interactive video, it is clear how much the digital revolution has touched all aspects of design and production processes. Moreover, the emergence of digital technology has contributed to the blurring of boundaries between design disciplines, as shared software tools and the digitization of traditional media and products have led to new forms of creative practice. The different uses of digital media and the variety of applications that exist make it difficult to define a specific set of relevant skills and parameters of practice that can be encompassed under the term “interactive design” (Steane, 2015, p. 8). In order for interactive design to appeal to the target audience, the technique chosen and applied by the designer is very important for interactive narrative. The design in the representation of reality in animation should be at a level to be created with techniques.

2. Stop Motion Animation

Stop motion animation, unlike other types of animation, is the successive movement of three-dimensional or two-dimensional objects. This technique allows the designer to be creative by interacting with concrete objects. Unlike other digital techniques, there is the naturalness of the movement and the impression it leaves on the viewer.

Animation is animation regardless of the medium. Whether by drawing on paper, modeling in Plasticine, pushing a few matching boxes in front of a Bolex camera, or animating with a computer; the important thing is that to be an animator you need to understand movement and how to create emotion (Shaw, 2004). In this context, it can be considered as a technique left to the creativity of the animator, and the fact that the person who will design interacts with the visual to be created more than other techniques reveals a more original work.

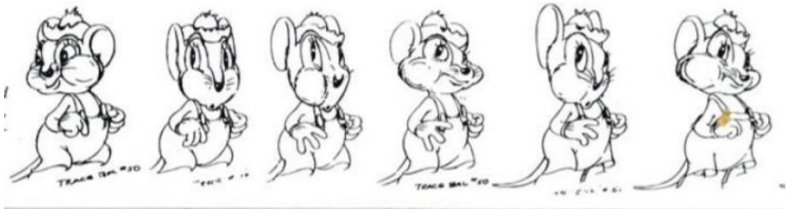


Figure 1. Line animation,
(Johnston and Thomas, 1981, p.49).

In the 19th century, many entertaining devices were created to actuate two-dimensional objects. One of the simplest is the “thaumatrope” invented by Dr. John Paris of England in 1824 to reveal a phenomenon known as “continuity of vision” (Sawicki, 2010). Thaumatrope: It is a cardboard disk held on top or between two pieces (Williams, 2009). When the disk is turned, it is seen that the pictures merge. For example, there is a bird on one side and a cage on the other. By turning the circle, the bird is seen inside the cage” (Whitehead, 2012, p. 20). As can be seen in Figure 2, an illustration drawing created by the designer in his own style has been animated and emerged as another visual.



Figure 2. Thaumatrope cardboard disc material,
(Sawicki, 2010, p. 2).



Figure 3. Zoetrope,
(Sawicki, 2010, p.2).

This playful toy has evolved into more sophisticated devices such as the zoetrope, where a series of slightly different images are applied to create kinetic movement (see Figure 3). With devices similar to the Zoetrope, the use of the stop-motion technique began to advance.

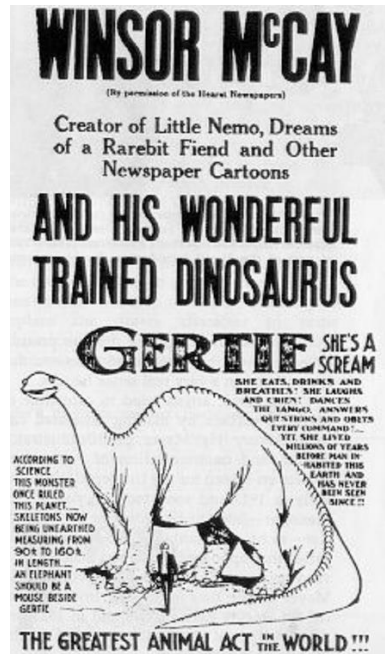


Figure 4. “Gertie the Dinosaur” animation, 1914,
Source: <https://www.kisa.link/evUuS>, (Access Date: 26.06.2024) .

From what Emile Cohl says about Winsor McCay’s “Gertie the Dinosaur”, it is understood that the first version of the film did not include the “live action” prologue sequence and consisted of an animated sequence with a dinosaur playing alone (see Figure 4). Cohl states that Winsor McCay himself appeared in front of the screen on which this animation was shown and performed a stage performance in which he gave commands to the dinosaur he had drawn (Crafton, 1993, p. 111). By the late 1920s, sound had been added to moving pictures and the variability of frame rates had become unbearable, so standardization had to be adopted. A group of movie theater owners got together and decided on the best presentation speed by comparing the different frame rates they had used over the years (Sawicki, p. 3). In the late 1920s, sound was added to motion pictures and the variability of frame rates became unbearable, so standardization had to be adopted. A group of cinema owners got together and compared the

different frame rates they had used over the years to decide on the best presentation speed (Sawicki, p. 3).

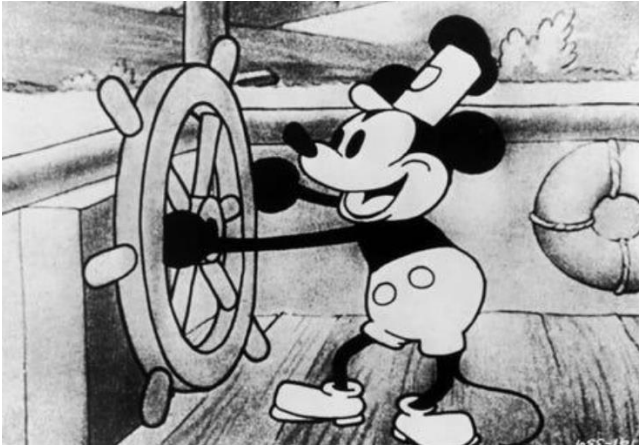


Figure 5. Steamboat Willie/ “Mickey Mouse” character in the movie Steamboat Willie,

Source: <https://www.kisa.link/XpHgX>, (Access Date: 21.05.2014).

In 1928, Walt Disney released the first cartoon with fully synchronized music, “Steamboat Willie” featuring Mickey Mouse (See Figure 5). This film started the classic period of Disney Studio and the art of animation. From the early 1930s to the early 1940s, Disney guided the creation of a group of cartoon characters belonging to the most popular folk heroes of America, such as Mickey Mouse, Minnie Mouse, Donald Duck, Goofy and Pluto. In addition, Disney’s animators produced the Silly Symphonies series, “Music Land” (1935) and “The Tortoise and Hare” (1935), in which they tried and developed new graphic and motion ideas. (Hanhardt, 1981, p. 42). In the 1960s, Stan Vanderbeek became one of the most acclaimed underground filmmakers who experimented with computer graphics and multi-screen projection. He produced films using a variety of processes, including collage, hand-drawn animation, live-action film loops, video, and computer-generated graphics (Krasner, 2013, p. 17). Before adopting software tools in the 1990s, filmmakers, graphic designers, and animators used completely different technologies. Therefore, as much as they influenced each other or shared the same aesthetic sensibilities, they inevitably created different-looking images. Filmmakers used camera and film technology designed to capture three-dimensional physical reality. Graphic designers worked with offset printing and lithography. Animators worked with their own technologies: an animation booth

with transparent cells and a fixed film camera that could make one-frame exposures as the animator changed the cells and/or moved the backgrounds (Armstrong, 2009, p. 128).

Like film and other “moving pictures,” animation uses a sequence of still images to create the optical illusion of movement. The brain holds onto images for a second longer than the images actually in front of us, creating the illusion of a dream, where multiple images appear in rapid succession. This phenomenon is called “persistence of vision.” The illusion is powerful and captivating, as the images appear to move and come to life. Images for animation can be created through software, photography, and drawing. The smallest unit of animation is a single still image, a frame. In frame-by-frame animation, a series of still images are drawn or digitally created. These still images vary from frame to frame through successive deviations in scale, orientation, color, shape, layering, and/or transparency (Lupton & Phillips, 2008, p. 222). Animation processes that have evolved from traditional methods to modern digital tools have allowed for more controlled and creative solutions, both aesthetically and technically.

Time-lapse photography is a controlled and consistent form of stop motion shooting. The effect of time-lapse photography is to speed up time and events so that the viewer can examine an event from a different perspective (Gasek, 2017, p. 10). This perspective and different perception of time can provide the viewer with a broader understanding of the subject. Starting in the 1970s, animators began to adapt stop motion, one of the animation techniques, to computers, thus providing control mechanisms that animate the animations (Laybourne, 1998, p. 159). The transition of animation processes from traditional techniques to today's digital tools offers unlimited control and creativity.

2.1.Stop Motion Animation Examples

Stop motion animation is one of the oldest and most creative techniques. This technique combines the illusion of movement and is achieved by shooting objects frame by frame. Since it is a technique that the designer produces manually, the emergence of more original works creates a different visual field for the viewer.

Starting in the 1970s, animators began to adapt computers, thus providing control mechanisms that set animations in motion. Long before computer control, as it was called, it moved animation to a higher-level world object, thus giving birth to a field known as motion control animation. It is a technique used when you remove the animation camera from its stand and want to move

it across a stage area with frame-by-frame control. Sometimes the camera is mounted on rails. Sometimes it is attached to a long arm that can move over and above the area being shot. The movement of the camera is interrupted so that the animator can make changes to the puppets or objects in the scene before continuing with the exposure of individual frames. When the scene is projected, the camera movement is absolutely smooth and looks as if it was shot in live action motion (Laybourne, 1998, p. 159). Stop motion is a useful technique in that it allows instantaneous interventions in the scene. In terms of the animator's original project, a flawless work can be produced with the appropriate device movements.



Figure 6. Concept art of characters from the movie
“The Nightmare Before Christmas.”

(Courtesy of Animazing Gallery/Touchstone Pictures.), (Priebe, 2011, p.37).

Nightmare was produced over a three-year period in a 40,000 square foot warehouse in the San Francisco Bay Area. This was the first time a stop-motion film had been produced with a large budget and a wide range of experienced talent. Disney was back on top, animation was exciting, and stop-motion was riding the wave of its first great golden age in all its aspects; clay, puppets, and animated effects. Nightmare incorporated almost every puppet and

filmmaking technique ever used for stop-motion: front/back projection, double exposure effects, foam latex casting, ball and socket armatures, backup animation, and strong character performance. The production design was incredibly strong, and another unique feature was the extensive use of modern motion control to make the camera a moving part of the story (Priebe, 2011, p. 37). The combination of certain design techniques with the new technologies produced, and the original designs of the characters, created an intriguing example of stop-motion animation (See Figure 6).

To stop the movement, more frames are needed than most animated animations. It requires a lot of discipline to see a missing detail. Because, the image that helps determine the weight, direction and speed of the movement can often be overlooked. It is necessary to look very carefully to relate each frame to the next and previous frames (Purves, 2008, p. 11). In order to understand the movement correctly and to ensure the fluidity of the animation, each frame needs to be given special attention. Disciplined work and attention to technical details are required at every stage of the animation.

One of the realities of life in continuous shooting is that the camera does not start at the right speed immediately. For this reason, the first few frames are usually not spoiled. In addition, when the camera is turned off at the end of the shooting, it is not guaranteed that the shutter will remain in the “closed” position; otherwise, an overexposed “flash” frame will be obtained. As a result, the entire animation sequence (even the parts with no movement at all) must be shot in the same way. In other words, it is important to use the necessary stop motion (single frame shooting) for the moving parts. For animation, it is important to have a stop motion (single frame) feature on the camera; most 8 mm and some 16 mm cameras have it as a standard feature (Perisic, 1978, p. 13). It is very important to ensure that the tools used are meticulously controlled during the production phase so that the resulting animation does not falter in stop motion.

In stop motion technique, it is very important for the camera to capture the frames at the right speed and to maintain consistency in each frame. This is also about making the weight and speed of the movement feel right. This technique allows the physical characteristics and movements of the characters to be reflected in detail, especially in clay animation. Nick Park's *Wallace and Gromit: The Wrong Trousers* is a prominent example of stop motion being used masterfully, with original characters and creative storytelling.

“Wallace and Gromit (The Wrong Trousers)” (see Figure 7), directed by Nick Park with an unusual story with clay animation, cinematography and puppet (clay) animation and different and strange characters, is an example of stop motion animation in 1993 (Pikkov, 2010). As seen in Figure 7, Park seems to have included his own touches in every detail of the character, these touches reflect the originality of the resulting work and create a more interesting and labor-intensive project.



Figure 7. “Wallace and Gromit The Wrong Trousers” stage set,

Source: <https://www.kisa.link/GzOsl>, (Access Date: 05.05.2024).

Park won the “Academy Award for Best Animated Short Film” in 1994 with this animation. The film “Wallace and Gromit: Curse of the Rabbit” (2005), directed by Nick Park and Steve Box, won the Oscar for “Best Feature-Length Animation” (Furniss, 2008). Most puppets are inseparably linked to the puppeteer or at least one of his/her beings; puppetry has a more unique and long process than other techniques (Purves, 2008, p. 33). It is possible to facilitate these long-term and detailed animations with teamwork.

2.2.Cut- Out Animation

The cut-out technique, one of the stop motion techniques, is a very economical, personal and intimate form of animation that is a practical experience for animators (Purves, 2010, p. 113). The advantage of making cut-out animation is that you can intervene effectively at any time (light, image, movement, etc.).

The biggest technique in the “cut out” technique is “cuts”. Cuts can be original pictures, photographs, figurative or abstract in nature. Animation is also a very direct and suitable technique. When designers, directors and animators researched this form, “The Adventures of Prince Achmed” directed by Lotte Reiniger was the first cut-out animation film ever made in 1926. There are countless other cut-out animations from all over the world that support animation due to the direct and cheap approach (Gasek, 2004, p. 118). As seen in Visual 8, a silhouette image was created with the movement of the characters together with the water effect in the space.



Figure 8. “Cut-out” design from the animated film
“The Adventures of Prince Achmed”,

Source: <https://www.kisa.link/EbMLR>, (Access Date: 09.06.2024).

The most popular and largest technique in downward shooting is cuts. This area deserves a book on its own due to its deep history and variety of applications. Cuts can be original pictorial works of art, photographic, figurative or abstract in nature (Gasek, 2013, p. 99). Cut-out (silhouette) animation involves cutting characters with moving parts from paper as the main material and directing them frame by frame against the background in front of the camera. Today, most cut-out animations are produced using computers; moving parts are cut from drawings and transferred to the computer digitally when necessary (Pikkov, 2010, p. 20). Digital interventions can be made to make changes in stop motion animations produced as cut-outs. Photographs can be combined in Adobe Premiere Pro to create a moving image.



Figure 9. Emma Burch, “cut out” design from the animated film
“Being Bradford Dillman”,

Source: <https://www.kisa.link/yksUh>, (Access Date: 06.08.2024).

Emma Burch’s elegant and detailed film *Bradford Dillman* used a fascinating combination of articulated flat figures against miniature backgrounds. Some of the scenes in this film were achieved using a multi-plane system and blended with detailed scenery (Purves, 2014, p. 125). As seen in Figure 9, fabric details were also used as typography.

Most of the cuts are animated on a traditional animation stand or specially. The camera position should be in a downward stance. Most of the cut films tend to be figurative with a certain narrative. This may be because the illustrations are taken from magazines or cut (Gasek, 2017, p. 119). Illustrators are very good at motion design. They are trained to create strong compositions between various visual aesthetics. They are image creators at the core of the creative world. Illustrators who learn the design language for motion or sequential thinking can play a very creative role in design-oriented productions (Shaw, 2019, p. 9). The versatility of digital tools has opened up new possibilities for illustrators to achieve certain visual effects more easily

and work more effectively. Working digitally is just a change of tools. Hand-drawn drawings are made, but instead of paper and painting materials, a tablet and drawing software can be preferred (Salisbury and Morag, 2012, p. 133). In the illustration preferred by animators, as artists moved away from hand-drawn pictures and towards a more digital style, cuts and curves were replaced by pixels and vectors (Gildersleeve, 2010, p. 9). Using the print of digital illustration, a cut-out technique can be created to create a different effect in the animation by cuts and curves.



Figure 10. “Cut out” design used in the Public Education Center promotional animation, (Ş.Toruk, 2020, p. 96).

As seen in Visual 10, the Public Education Center was designed as an interactive visual narrative for the young target audience by applying stop motion animation in the cut out technique. After the digital illustration was drawn and printed, the location and character designs were cut. In order to provide movement, the characters were created by taking digital prints of different angles. As required by the scenario, both the black-and-white and colored images of the location and characters were printed.

3. Interactive Narrative and Design Process

Interactive narrative means that a topic that is being told reaches the audience. When this communication is to be provided with visual integrity, design plays an important role. If the design is not suitable for the target audience, it may not be possible for it to take place as a project that will be interacted with. In order to avoid design problems, the stage of finding and developing ideas should be started after the design technique is determined.

A complex plot that cannot be understood in a narrative (novel, story, scenario, introduction, etc.) may not be conveyed to the target audience in written and verbal form. If this narrative is a visually conveyed narrative, complex events may be more understandable for the audience. It is seen that interactive narratives, along with inanimate objects brought to life through drawn movement, models and drawings, and "non-live action" animation, cannot be included in some narratives because the design is not suitable for the target audience so that the target audience can actively master the narrative (Dobson, 2020, p. 4). In order for such narratives not to exist, certain design disciplines must be learned and appropriate design techniques must be determined.

Digital stories contain a range of words, images, narrative and sometimes music to enable a story to be told using digital media. Using digital stories can be a powerful medium as a product is created that can be accessed multiple times across different mediums. Digital stories are not simply a collection of words and images. They have a story line and participants work to develop an idea or focus and then create a plot that develops so that the story has a beginning, an end and a central theme. Using digital stories is a powerful tool for students, particularly when stories are formulated in workshops with service users and carers. Digital stories provide a means for expression and participation but may lack the interactive element of real-time storytelling. Online stories can be more interactive. A study with a university included an online forum where homebound service users could interact with students and share their stories and experiences (Brewer and Hogarth, 2015, p. 159). The production of online stories is about reaching more people and achieving this goal by having the right story integrated into a visual product.

- * Interactive story worlds are not “games with added story”.
- * Interactive story worlds are not “movies with added interaction”.
- * There is a fundamental conflict between plot and interaction.
- * There is no conflict between process-oriented narrative and interaction (Crawford, 2012, p. 3).

Interactive story worlds are based on many small decisions rather than a few big ones. Today, videos have additional media. Graphics, animation, still photos, and text can visualize the interactive story. So just as writing a two- or three-column script requires some adjustment, writing for interactive media will require a new layout that will accommodate not only more media production elements but also the nonlinear format and interactive possibilities of the program. This applies to both interactive teaching programs, games, and interactive narratives (Friedmann, 2010, p. 254). Good presentation of ideas, appropriateness of the story to the subject are issues that need to be paid attention to in terms of establishing a connection with the audience. For example; in order for a player to play the game, the goal of winning the game must be aimed at the player, and the player must establish a connection there. In interactive narratives, if the idea is presented well, the audience will have the opportunity to empathize by feeling themselves in the story.

Any design project using moving images can be costly and there are many more factors to consider than a standard design project. When budgeting for this type of work, it may be necessary to consider the costs of actors, animators, studios, locations, editing, scriptwriters, director, cameramen and specialist equipment that will be required during production. In addition to the factors of movement and time, sound can add another dimension to a project. A few well-chosen words or pieces of music can connect with people on a very personal and emotional level (Leonard, 2016, p. 109). Interactive formats showcase the different uses of on-screen interactive design and refer to the limitless ways in which interaction moves beyond the small screen into environments and events. These examples are integrated with relevant interaction theory on the design of learnable interfaces, mobile application development and game design (Steane, 2015, p. 11). Stop motion animation is in the hands of people. As a craft, designing stop motion animation requires a person to literally place a puppet in their hands and animate it frame by frame. The other meaning is that stop motion art has recently not only brought it more prominently to major film studios, but has also made its way into more homes, schools, websites and mobile devices in an unprecedented way (Priebe, 2011, p. 17). Stop motion is not only in movies, but also on more accessible devices, allowing the target audience to easily view and interact with these unique animations.

The flow in the design is hierarchical with links so that the user has the opportunity to connect traditional text descriptions to images (video, graphics

and audio) in the media itself via hyperlinks. Each page has a button that connects to other branches so that the user can move between topics as desired. Each page is designed to offer a deeper level of choice with a choice of buttons or hyperlinks that branch the user to a graphic image (Friedmann, 2010, p. 256). The designer can only engage the user or viewer with a suitable design that the user can be guided to. Animation is one of the important motion graphic areas offered for the viewer.

3.1. Creating an Interactive Animation

In order for animations to be transformed into an interactive state, the design must be at a level that is targeted at the target audience. When the design process is according to the target audience, it can create an interaction with the audience.

Today, designers must consider how a design can be translated and successfully used across multiple platforms to a variety of motion graphics tools. Websites increasingly prefer to show rather than tell, replacing text with animations and movies that illustrate a product or concept, and these are increasingly becoming more interactive (Leonard, 2016, p.106). The field of Interaction Design has only been structured and recognized as a unique discipline in the last 20 years, generally in line with the prevalence and nature of technological change (Steane, 2015, p. 16). Animation is a combination of design for movement, image creation, and storytelling. It encompasses the early creative stages of a motion design project or production. A certain amount of planning is useful before you begin creating movement, whether in camera or through animation. A project needs a strong concept, a visual style, a storytelling output, and certain specifications for delivery (Shaw, 2019, pp. 7-8). The reason why animation is preferred is that a creative idea can be easily changed by more intervention. After a certain planning, the visual elements that will reveal the idea are replaced and the preferred technique is applied.

Differences in technology have influenced what types of content appear in different media. Cinema has shown “photorealistic” images of nature, built environments, and human forms combined with special lighting. Graphic design includes typography, abstract graphic elements, monochrome backgrounds, and cut-out photographs. In animation, cartoons show flat characters and flat characters and objects animated on hand-drawn but more detailed backgrounds (Armstrong, 2009, p. 128). The final appearance of an animation is expressed in one or more style frames that determine the

aesthetic tone and formal elements. A style frame captures most of the graphic elements used throughout the piece. Typography, colors, patterns, drawings, and photographs selected for the project are often included (Lupton and Phillips, 2008, p. 228). Color, pattern, and typography must be harmonious and must avoid distracting visual elements so that the idea is not confused.

Despite all the detail that can now be incorporated into a website or other digital project, design principles remain true: each piece of content should serve a function and contribute to the overall design, rather than being included just because it can (Leonard, 2016, p.106). When graphic design principles are applied to animation as design in function, interactive content is created.

The idea for the ad determines how the story will unfold, the scenes, the tempo and rhythm, the color palette, the sound, the types of sounds—every art direction and design decision (Landa, 2021, p. 208). In time-based media, you create a series of events that have relationships to each other—temporal relationships—the images and (words, sound, and actions) that occur over a period of time are the story events. For example, a character throws a box that bounces and then breaks. The throw, the bounce, and the eventual break are visually and temporally related as a chain of events (Landa, 2021, p. 208). Rhythmic relationships are created by the duration of each shot and the way the images interact, contrast, variety, and composition are conveyed from one frame to the next. Duration is the period of time in which action exists. Rhythm is also tied to tempo—the speed or rhythm at which a time-based ad unfolds, the pace of the action. When viewers see a repeated element and alignment or hear a repeated sound, this repetition helps them perceive the work as a unified whole (Landa, 2021, p. 212). In a commercial or a promotion, the harmony of sound and image should be planned in the animation produced so that the viewer follows the image without getting bored.

By applying an animation to interactive story design, ideal situations are created where story content and interaction are perfectly integrated. Ideally, an overall narrative story logic, including the assigned story role of the player defined at the top level, covers all lower-level design decisions (IDN, 2015, p. 165). In an interactive animation for the audience; it may be necessary to catch people's attention immediately before they have a chance to leave. It is necessary to keep the audience's attention, engage them with an engaging story, image, movement or music. In time-based media, animation, TV commercials or videos, if the viewer is still in front of the screen, you have a

chance to re-capture people's attention. It is necessary to make people engage by calling them to action, creating awareness and directing them to the website. It may need to be engaging enough to be entertaining or informative, worth watching again or sharing (Landa, 2021, p. 212). In order to attract the attention of the audience, the target audience must be determined before the design plan, then the designs that they will be curious about and the sound, image and movement technique scheme must be created.



Figure 12. Public Education Center Introduction animation scene, (Ş,Toruk, 2020, p.103).

The scene image in Visual 11, which is about the target audience of young people, was created practically by considering a scenario and design in order for the promotion to be needed and realized and for young people to benefit from public education centers when they encounter this promotion while they are in a pessimistic situation and from negative situations in their business life. With the succession of the photos, when they are animated in digital programs, the environment presented in real life was animated with the stop motion technique, cut-out was applied together with the sound effects added according to the movements (Ş, Toruk, 2020, p.109). In this study, the aim of the promotion that the young target audience encounters is to design the sound, effects and designs considering an interesting visual narrative and to create an interaction with the audience and the designer, and to create a stop motion animation example.

4. Conclusion

The fact that a text or idea can be more understandable for the audience when it is conveyed visually is emphasized in this section in terms of interaction in visual narrative stories. The effect of moving inert objects in visual narrative and the use of animation on the target audience is conveyed. It has been shown that the application created by designing the real-life image in two dimensions and creating halting movements (stop motion technique) can be presented as an example of interaction in the introduction of the Public Education Center, which is shown to the young target audience from a different perspective.

Narrative is used to inform, educate and entertain. It provides meaning, background, context and encourages interest in what happens next (Meadows, 2002, p. 36). In animation, a good idea must be told with complete and absolute joy for the storytelling to be carried to imaginative extremes using all the elements of sound, music, movement, design and character (Purves, 2008, p. 22). Since the typography, color, pattern, drawing and photography chosen for animation are important elements in the design process, when we look at the history and studies of cut out and illustration techniques from stop motion techniques, we see a process that has gone through many stages in the development of animation and its techniques with trial and error methods and has developed rapidly with digitalization.

Many children and young people today have extensive expertise in new technologies, popular toys, and the action figure market. Therefore, teaching animated filmmaking using action figures of their own choosing can be relevant and engaging at every grade level, from kindergarten to college. By making their own films that reinterpret popular toys, students can become critical and skilled productive consumers of digital media and visual culture in general (Ivashkevich, 2015, p. 46). At this stage, these works, in which students learn through interaction during the production process, can transform into a society that learns and teaches by producing.

Interactive digital narratives are an important term because they connect with known aspects of culture and history while also promising the future. They bring together academic studies from a wide range of disciplines and the practices of artists, writers and game makers inside and outside the industry (IDN, 2015, p. 10). The design processes for interactive games, educational information networks, digital concept and mind maps, mobile learning, social media, digital stories and animations are quite comprehensive. For this

reason, within the framework of a planning framework in the direction of the flow suitable for interaction, the more interactive the techniques used in the design are, the more the resulting design will be able to interact with the narration conveyed together with the visual integrity that will attract the attention of the target audience.

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chapter 9

Digital Media and Interaction Design in Times of Crisis and Disaster

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Abstract

The innovations brought by the digital age have led to one of the fastest periods of change in human history. In particular, advances in digital media and smart device technologies have radically changed the way people receive and share information. Today's users are no longer just consumers of information, but active participants who can create and publish their own content. This transformation manifests itself in a wide range of applications, from social media platforms to emergency applications.

The first part of the article discusses the characteristics and opportunities offered by digital communication platforms. This section examines the transition of users from passive viewers to active content producers. The article then focuses on the role of digital media during emergencies, crises and disasters. By examining the digital solutions developed nationally and internationally in times of crisis and natural disasters such as earthquakes, it evaluates how these technologies can contribute to pre-crisis and disaster readiness, immediate response and recovery efforts afterwards. It is argued that the experiences shared on relevant digital platforms can contribute to both shaping management policies and raising awareness of future generations. In conclusion, the article emphasizes the importance of developing accessible, easy-to-use and continuous digital interaction platforms in emergency and disaster management. It is stated that such platforms will lead to more efficient use of existing technological facilities.

Keywords: Digital transformation, social media, participatory culture, interaction, crisis management, crisis, disaster awareness, interactive design, user experience.

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1. Introduction

Digital transformation has led to radical changes in the information, communication and social interaction dynamics of today's societies and reshaped the processes of accessing and sharing information. In particular, developments in digital media and smart device technologies have transformed individuals from passive consumers of information into active participants who produce and share content, creating a new ecosystem of social participation. Society is changing along with the change in forms of communication (Shirky, 2008). This process has profoundly affected not only individual and community communication, but also strategic areas such as crisis management and resilience building.

This article takes a multifaceted perspective on the individual and societal impacts of digital transformation and assesses the potential and limitations of digital media in crisis and disaster management. First, the transformative impact of digital media on the daily lives of individuals is discussed, followed by its unique contributions in times of crisis and disaster. It highlights the benefits of digital media in terms of speeding up the flow of information, facilitating aid coordination and strengthening social solidarity, as well as challenges such as disinformation, digital inequality and ethical issues.

Designers play a critical role in managing these multidimensional impacts of digital transformation. Developing user-friendly, accessible and ethical platforms not only increases the effectiveness of digital media in crisis and disaster management, but also enables individuals and societies to benefit more from digital tools in daily life. Innovative solutions, ranging from information verification mechanisms to culturally sensitive designs, demonstrate the potential of digital media in enhancing individual and societal resilience.

This study, which aims to contribute to the literature by discussing the effects of digital transformation in crisis management, both evaluates current practices and offers suggestions for designers and technology developers to shed light on future studies. Thus, it aims to create a theoretical, strategic and visual framework for more effective use of digital media in crisis and disaster management.

2. Digital Transformation of Media and Participatory Culture

The means of communication and expression that existed in the pre-internet era are called traditional media or conventional media. Platforms such as television, radio, cinema, newspapers, magazines and books are considered in this category. The most prominent feature of these conventional media tools is

that communication is one-way and content flows unilaterally from publishers to recipients. In traditional media, the production and distribution of content is monopolized by certain institutions and the opportunities for feedback from viewers or readers are very limited. Modern and/or digital media, on the other hand, include platforms that enable interaction between content producers and consumers. This new form of media emerged with the development of computer technologies, and with the widespread use of the Internet, it has become as effective as traditional media, and in some areas even more effective (Binark, 2007). The production and distribution possibilities provided by digital media, the ability of users to share information with people they do not know across geographical boundaries, and their tendency to use existing platforms creatively show that interactive media has become a fundamental element of contemporary communication. This transformation has transformed individuals from passive viewers into active content producers and contributed to the creation of a democratic communication environment. In other words, new media has created instant and continuous communication opportunities, transformed users into content creators, and thus the media has become one of the cornerstones of participatory culture rather than merely a channel of information distribution.

Web 1.0, the first phase of digital communication, started with the introduction of hypertext structures on the computer screen. This development enabled content to be read in the digital environment. Thanks to the HTTP protocol, it became possible to share various documents, images, text and graphics, and users were able to navigate between content through hyperlinks. This period is recognized as the beginning of the consumption of digital content (www.eastgate.com). With the developments in internet infrastructure following HTTP technology, digital possibilities expanded and analog content was rapidly transferred to the digital platform. Developments in web technology have simplified and accelerated processes that previously required complex technical knowledge. Today, this process has been reduced to users being able to create their own digital spaces with a simple registration process. Through blogs, wikis and social media platforms, users can produce and share their own content within certain formats. Content production on these platforms usually takes the form of the transmission of thoughts, feelings, experiences and stories. In the modern digital age, every narrative potentially becomes part of social media and part of a collective story (Alexander, 2011, p.41). This sharing model has encouraged collaboration and co-production processes, which is one of the main

characteristics of participatory culture. The use of social media is not only limited to content sharing, but also creates a dynamic and ever-changing environment in which third parties in the audience are involved in the interaction. This interaction is realized through various mechanisms such as like buttons, comment fields, editing tools and re-sharing features. Each user is both a consumer and a potential reproducer of content.

Content shared on digital and social media triggers the creation of new content, thus blurring the start and end points of content. This leads to the production of secondary content such as reproductions, fan fiction, user comments, criticisms, debates and similar works, and each content becomes part of a large digital ecosystem. In this process, production and consumption occur simultaneously, and content is constantly reinterpreted and transformed. Today, group formation processes have simplified and there is an explosion of experimentation with new types of communities (Shirky, 2008, p.54). This development has facilitated the coming together of individuals with common interests, paving the way for the formation of digital communities and collective knowledge production. These communities develop new norms and practices in content production and sharing, and play an active role in the evolution of digital culture. This transformation process is radically changing media consumption and production habits and reshaping social forms of communication and interaction. Although user-oriented content creation and distribution opens up new possibilities in fields like democratic engagement, access to information and freedom of expression it raises new debates on digital literacy, information reliability and privacy. Finally, new media and participatory culture are not only a set of technological advancements but also the name of a complete shift in the patterns of communication of societies. This digital revolution is studied with concepts such as collaborative media, interactive media, and social networking.

2.1 Collaborative Media and Participatory Culture

Digital technologies have changed the tools of communication and the platforms that make use of them, changing the way people interact in fundamental ways. These tools enable people to communicate freely, quickly and frequently, no matter how far they are from each other. In addition, they help people to create social ties by communicating with people they know and people they have never met. This evolving form of communication has given rise to what is known as participatory or collaborative media. This structure has enabled individuals to create a collective content by sharing their events, experiences and

ideas online. Through constant and uninterrupted communication, participatory media significantly influences social movements and human relationships. This fosters collaboration, sharing, and collective production among individuals while also allowing large-scale platforms, such as social media, to accommodate millions of active users. Participatory media has reversed the one-sided communication approach of traditional media by offering creative freedom to individuals in terms of content production and sharing.

Participatory media manifests itself not only through individual posts but also through large-scale projects. For example, the "A Million Penguins" project was launched by Penguin Publishers in 2007 and invited all Internet users to write a novel together (Pullinger, 2007). This project enabled users to create a kind of collaborative literature by writing their own stories or contributing to others' stories. This interaction between participants created new stories and ramifications within the story, resulting in a collective narrative that is constantly evolving and changing.

As an innovative project in the field of participatory online media, This Exquisite Forest enabled users to contribute to collaborative story creation. Open from 2012 to 2014, the platform allowed participants to create short animations using an online drawing tool, from which other users developed branching and expanding narratives (see Figure 1 and Figure 2). The project was conceived by Chris Milk and Aaron Koblin and realized in collaboration with Google Data Arts Team and Tate Modern (www.exquisiteforest.com, 2012). Google Chrome's advanced web technologies, Google App Engine and Cloud Storage infrastructure were effectively utilized in the project. The project was not only an online experience, but was also transformed into a physical exhibition at Tate Modern, offering visitors a digital and spatial interaction (See Figure 3). Opened on July 23, 2012, the exhibition remained open to visitors for over a year, offering the opportunity to make individual contributions to the project through digital drawing tablets. The exhibition space is equipped with an installation of screens, drawing tools and tablets specifically designed for digital interaction. Visitors were given the opportunity to watch short animations created by other participants or to contribute directly to the process through the metaphor of a growing and expanding forest. In describing their spatial experience, the project designers described the exhibition space as a peaceful and distraction-free environment that supports creative thinking (abrogers, 2012). In this context, the exhibition was intended to be an equally satisfying experience, whether participants were merely observing the artworks or actively engaged in the

project. The spatial layout of the exhibition created continuous surfaces for the projections, creating an atmosphere that made visitors feel as if they had entered a website when they stepped into the space. As of August 1, 2014, the project has been closed to new animations, but is still open to users who wish to explore the creative process of participatory media and discover previously created animations.



Figure 1: This Exquisite Forest introduction and story submission pages (exquisiteforest, 2024).

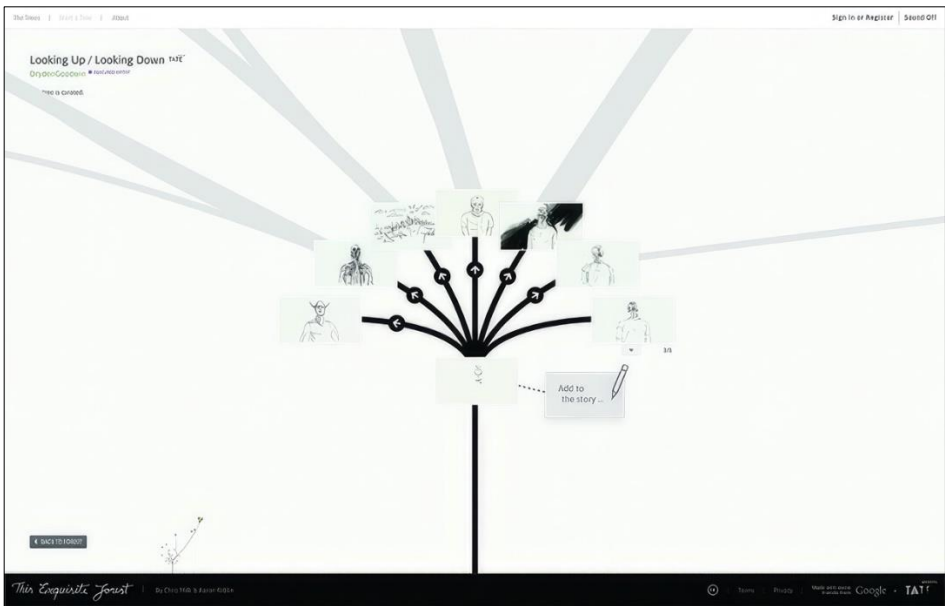


Figure 2: This Exquisite Forest participatory drawings (exquisiteforest, 2024).



Figure 3: This Exquisite Forest Tate Modern space designs (abrogers, 2012).

Participatory media enables individuals to become active content producers rather than just passive viewers consuming information. This paves the way for the formation of digital communities where individuals share their thoughts, experiences and emotions. In addition, these environments support interaction and communication processes among participants, while also providing a democratic platform for information sharing. While such projects allow individuals to express their creativity, they also encourage collaboration and co-production processes. These systems in which users create content based on the content of others strengthen digital communities and contribute to the development of a single digital culture. Participatory media can help people not only post their own content and share it, but also take other people's content, use it in their own projects, and develop them further, so that the digital ecosystem is always developing.

The development of web technologies has also enabled people to become creators of digital platforms and content, especially for content creation. Some of the tools that have enabled this include blogs, social media platforms, and wikis, which allow people to post their own content and feed into the dynamic digital culture. This has changed the way people and communities contribute content and have made social media platforms to become dynamic information sources.

To sum up, collaborative processes and participatory media are significant areas of change that promote individual creativity, aid in the democratization of digital culture, and alter social media platforms. At the individual and social levels, these frameworks are essential for comprehending and assessing the advances brought about by digitalization.

2.2 Interactive Media and Participatory Culture

Interaction design and interactive environments have evolved into a specialized field aimed at creating smooth, efficient, and sustainable user experiences with products and systems. The main goals include reducing the time it takes for users to engage with a product, ensuring seamless communication, and making interactions feel natural and intuitive. It's design and management are studied and applied within the discipline of interaction design (Smith, 2004; Moggridge, 2006; Akoğlu, 2010).

Interaction design has evolved into a dynamic and multifaceted field alongside the rapid growth of information and communication technologies (ICT). Today, designers must go beyond traditional marketing and strategic planning approaches, working collaboratively with experts in fields like human resources, cognitive science, and social sciences. By deeply understanding user behavior, designers can create solutions that align with psychological and cognitive needs, making interactions more intuitive and personalized.

Rather than just focusing on the technical aspects of design, interaction design now embraces a more holistic approach that considers social, cultural, and behavioral factors. As technology continues to advance and shape society, interaction design has become an interdisciplinary specialization. While industrial design has traditionally emphasized functionality, production, and aesthetics, interaction design prioritizes how users engage with a product or system—how information is exchanged, how a meaningful connection is built, and how personalized experiences can be delivered.

This approach requires the involvement of not only designers but also engineers, social scientists and marketers. Garrett defines interaction design as a process of understanding user behavior and enabling systems to adapt to that behavior. This definition reveals that interaction design is not only a design process but also a process of strategizing how users will experience technology (Garrett, 2011, p.81)

Concrete examples of interaction design are emerging with increasing momentum, especially in the field of information and communication technologies. Innovative tools such as smart devices, social media platforms, wearable technologies, augmented reality and virtual reality constitute various application areas of interactional media. These technologies aim to enable users not only to consume a product, but also to establish a meaningful relationship with it and turn this relationship into a long-term behavior. In this context, Saffer

defines interaction design as an art that facilitates connections between people through products and services (Saffer, 2010, p.4)

Interactive media has been used effectively in areas such as individual awareness, environmental awareness, social and community benefit, etc. Many successful examples demonstrate the power of interaction design. For example, the Helpsteps app is designed to encourage users to lead a more active lifestyle and at the same time contribute to society in areas such as nature and education. The app measures the steps taken by users, converts them into points and allows them to donate these points to various organizations (See Figure 4). This process increases user motivation and encourages sustainable behavior changes. Similarly, the Hiwell app is another successful example that aims to support users' psychological health (See Figure 5). Offering therapies and mindfulness techniques, the app provides guidance on topics such as psychological support, stress management and focus. The visual language of the app is designed to provide a user-friendly experience, and the therapy journeys are personalized with technology to make the user (client) feel better, even from a distance, through interactive elements (See hiwellapp.com). Such interactions and personalized options contribute to the long-term engagement of users.

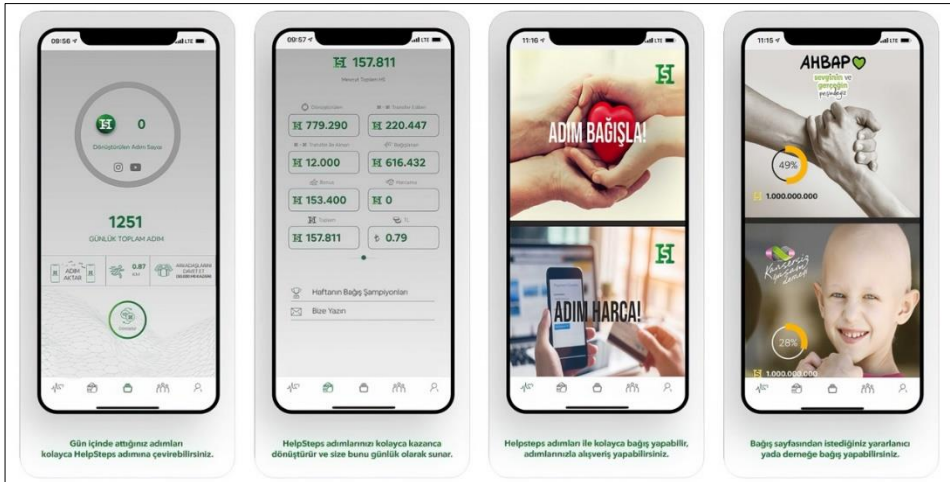


Figure 4: Visuals of **Helpsteps** Interactive Application (helpsteps, 2024).

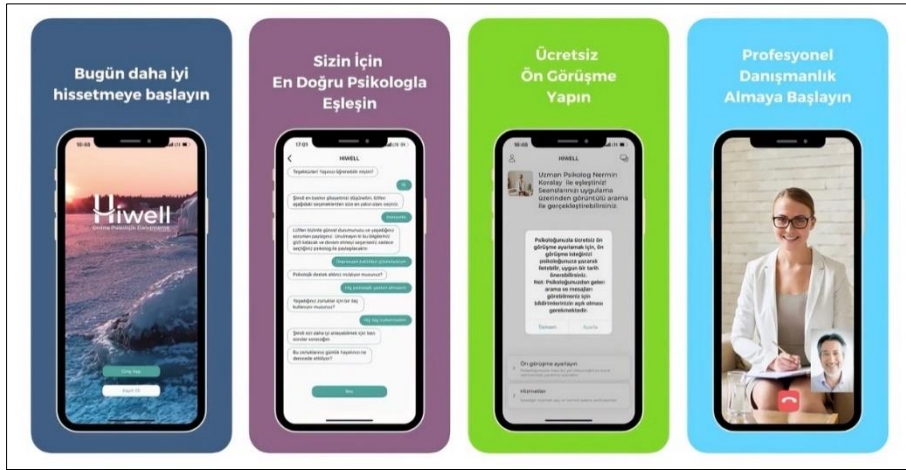


Figure 5: Visuals of Hiwell Interactive Application (hiwellapp, 2024).

Interactive media examples are successful not only with aesthetic and functional design elements, but also with persuasive strategies. Designs that center on user experience can create lasting changes in individuals' behavior. Providing a user-friendly and motivating experience that encourages users to make informed choices are key factors that determine the success of interaction design. In this context, interaction design is not only a product development process but also a tool that has the potential to create sustainable change for individuals and societies.

In conclusion, interactive media transforms the relationship between information and communication technologies and individuals, providing both individual and social benefits. This transformation is possible through the combination of user-centered design, interdisciplinary collaboration and innovative technologies. As seen in the examples, interactive media and interaction design is an important discipline that transforms technology into an accessible, meaningful and effective experience for users and contributes to the realization of their individual and social benefit goals.

2.1. Social Networks and Participatory Culture

While traditional media (newspapers, magazines, television and radio) remain influential despite the development of digital technologies, the Internet and mobile technologies have enabled the rise of new media platforms such as social media, online news sites and blogs (Lister et al. 2003, p.9). Social media environments such as blogs, X (formerly Twitter), Facebook, etc. accelerate the flow of information and diversify sharing methods by making it easier for users to create, edit and share text and visual content. By encouraging users' participation in content production and

sharing, these digital media platforms pave the way for the transformation of audiences from passive consumers to active participants (Lievrouw, 2016, pp.20-23). In particular, features such as likes, comments and shares enable individuals to take an active role in the production and distribution processes of content, rather than being mere consumers (Jenkins, 2019, p.428).

The rapid proliferation of social networking has made it easier for individuals to share their stories, memories and thoughts, supporting the creation of individual digital archives in the process. In other words, the growth of social networking platforms has made users' individual stories visible in a wider context. While users have made these stories visible on different platforms through the possibilities offered by technology, designers have been charged with the responsibility of constructing these processes and encouraging users. For example, the "Hurricane Digital Memory Bank" developed by the Center for History and New Media at George Mason University presents content such as text, photographs, video and audio collected from individuals on a map by associating them with geographical location information (Rosenzweig, 2005) (See Figure 6). This project ensures that individual stories are preserved and made accessible as part of a larger collective memory, and the currently active content can be accessed at <https://hurricanearchive.org>.



Figure 6. Hurricane Digital Memory Bank homepage (hurricanearchive, 2024).

The interaction opportunities provided by social networks have also paved the way for the emergence of new forms of offline behavior. Research shows that the opportunities to share and comment provided by social network designs can create behavior change models in individuals (Kamal, 2013, p.3). For example, activities such as participating in online petitions, updating social media profiles, joining various groups or supporting virtual events are examples of slacktivism. Digitalized and transforming media enables individuals to share their experiences and opinions with wider audiences, thereby increasing social participation. While social media platforms allow individuals to express different perspectives and find representation in a wider framework, they also transform the restrictive communication structure of traditional media (Duman, 2019, p.1638). The active participation of users in content production and distribution transforms social networks into more democratic information environments.

However, in addition to these opportunities offered by digital media, there are also some important challenges. Disinformation and manipulative content spread on social media platforms make it difficult for individuals to access accurate information (Sharma et al., 2019, pp.10-22). In addition, the excessive flow of information, called infobesity, can negatively affect decision-making processes by making it difficult for individuals to access reliable information (Koçyiğit, 2024, p.72). Therefore, it is of great importance for individuals to develop critical thinking skills, learn how to verify information and distinguish reliable sources in the digital media environment.

In conclusion, social networking and participatory culture facilitate individuals' access to information and strengthen social interaction and participation. However, digital literacy skills need to be developed in order to take into account the risks in the digital media environment and to take part in these environments in a healthy way. While digitalized media transforms individuals from being mere consumers of information to active participants and content producers, it also requires managing the challenges of this transformation. In this context, it will be possible for individuals to become not only content consumers but also conscious content producers through the development of digital literacy skills.

3. Digital Literacy and Its Social Importance

Digital literacy is a comprehensive concept that refers to the ability of individuals to access information in the digital environment, evaluate information, use it effectively and manage digital tools with ethical responsibility (Bawden, 2008, p.21). This concept, which was first introduced to the literature

by Paul Gilster in 1997, has become a basic requirement for individual and social life in the 21st century, where technology is developing rapidly and online information is increasing exponentially (Önal, 2010, p.105).

The Internet has become a vast information network that connects millions of computers worldwide and is used by millions of people. The internet, which allows individuals from different languages, religions and cultures to come together on the same platform, has made it possible to access information quickly and cheaply. However, while this environment offers opportunities in the production of new sources of information due to its lack of an official control mechanism, it also creates inequality for individuals who are excluded from the debate due to lack of access. Digital literacy encompasses not only access to information, but also the ability to assess its accuracy and use it with ethical responsibility. Today, the importance of these skills has increased as individuals have moved from being mere consumers of content to producers and sharers on digital platforms. In fact, every individual with a keyboard or a camera can act as an independent publisher and play an active role in media production. As Ng points out, in this new media ecosystem, sub-skills such as visual literacy, reproduction literacy, information literacy and socio-emotional literacy emerge as key components of digital literacy (Ng, 2012, pp.1066-1067, cited in Koçyiğit et al., 2024). According to Papacharissi, digital technologies have provided individuals with new communication spaces and possibilities, but how these spaces are used has become dependent on the preferences of the users rather than the nature of the technology (Papacharissi, 2002, p.9).

People not only consume media tools but also actively participate in their production and sharing processes. This dynamic reveals the importance of digital literacy not only for developing individual skills but also for enhancing societal resilience. Especially in times of crisis and disaster, digital literacy has a strategic role in increasing the resilience of individuals and societies. Digital platforms facilitate making vital decisions by providing fast and effective communication in such extraordinary situations. The studies by Şahinsoy, Çağlar and Demirel establish crucial roles of social media and other digital tools in disaster management organization, flow of information, requesting assistance and coordination in disaster areas (Şahinsoy, 2017, p.1-19). On the other hand, in order to prevent the misuse of social media and the spread of disinformation, the need for fact checking tools and media literacy is stressed (Çağlar & Demirel, 2023, p.509).

Digital literacy is not only important for everyday life but also plays a significant role in increasing the social consciousness and solidarity. For instance, in the case of the Isparta snowfall disaster, people employed social media to convey their challenges to the authorities and create awareness to the public thus demonstrating how digital literacy can be applied in citizen journalism (Çağlar & Demirel, 2023, p.513). Furthermore, online groups and social media platforms offer emotional support and enhance solidarity during calamities (Erdoğan, 2023, p.720).

This study thus argues that by advancing digital literacy, individuals and communities can better navigate the digital world and strengthen their readiness for crises. The strategies for this are: Integrating digital literacy into the education system, expanding the availability of digital tools, and implementing policies that address the problems of misinformation. Also, the support of credible sources of information and the launch of public awareness campaigns will contribute to the formation of a digitally literate society.

In conclusion, digital literacy is not only about being able to find and use information but also to understand and critically assess it. These skills are not only important for individuals but also for building stronger, more conscious and interconnected societies on a global and local level. Sometimes in the case of a crisis or disaster it becomes even more important to be able to navigate the digital environment and get the right information and support from the community. Digital literacy is no longer a luxury, it is a necessity in the contemporary society to enable societies to manage challenges and be current in an environment of constant change.

4. Digital Media, Interaction and Participatory Culture in Times of Crisis and Disaster

The increasing communication environments of the new digital age clearly reveal the important role of the digital media, interactive designs and participatory culture in crisis and disaster management. Digital platforms are two-way communication tools that not only help transmit information but also foster collaboration in real time. Traditional media does not work in a way where information flows in only one direction; digital media changes the rules of communication during an emergency by allowing people to create and post content themselves (Çağlar & Demirel, 2023, p.507; Işık et al., p.1). This shift reveals the potential of these platforms for crisis and disaster management and creates a large interaction ecosystem for making voices heard, getting support,

and finding resources, and for allowing people to become active players during a crisis (Lievrouw, 2016, p.20-22; Demir, 2023, p.710; Toprak, 2023, p.169).

One of the most striking examples of the effectiveness of digital media in crisis and disaster management can be seen in the 2023 Kahramanmaraş earthquakes. In this devastating event, platforms such as X (formerly Twitter) enabled survivors to report their location, call for help and share critical updates instantly. The rapid dissemination of information enabled rescue teams to respond more effectively, demonstrating how digital platforms can overcome the limitations of traditional communication tools (Koçyiğit, 2024; Demir, 2023; Eyüboğlu & Kodak, 2023). Beyond emergency response, these platforms facilitated aid coordination by connecting donors and volunteers through innovative applications such as deprem.io, and facilitated relief efforts by matching requests with available resources (Özcan & Işık, 2023, p.100). Thus, these tools have not only enabled interaction between individuals, but also large-scale aid organizations. For example, organizations such as the Ahbap Association have reached millions of people and developed effective aid mechanisms by announcing fundraising campaigns through their social media accounts (Koçyiğit, 2024, p.81). Digital media has thus played a critical role in supporting both individual initiatives and collective efforts. This reveals the potential of digital tools in supporting and/or creating organizational structures that can function effectively and quickly during crises and disasters.

Digital media has also brought about citizen journalism and the development of new sources of information as another significant contribution to the management of crises. People are allowed to use their mobile phones to report events and post information that may not be picked up by the conventional media. This paper also shows how social media was used to track the spread of fires and raise an alarm, and call for help and share information with the authorities during the 2021 Mediterranean and Aegean forest fires (Koçyiğit et al., 2024). Therefore, in this case, the use of digital media has improved the efficiency of both individuals and organizations in the management of crises through the provision of additional sources of information.

The role of digital media in crisis management was also transformed, and tested on a global scale, during the Covid-19 pandemic, and it was possible to assess its implementation in a more complex global environment. In the course of this period in Turkey, the Ministry of Health made use of digital communication to create public awareness, and to help people get access to health care services as well as to ensure that society keeps order through campaigns and practices.

Public service announcements, expert videos and collaborations with celebrities shared on social media platforms helped individuals learn about Covid-19 and increased vaccine awareness (Yeke & Selçuk, 2022, p.1902; Alptekin & Alarçin, 2023). The Hayat Eve Sığar (HES) application has become a fundamental tool in pandemic management with functions such as contact tracing, identifying risk situations and controlling social mobility (Alay and Tüfekçi, 2023, p.80; Sancakdar and Kamer, 2024, p.126). Thanks to the HES code requirement, mobility in public transportation, shopping malls and other social areas has been taken under control, digital technologies have played an important role in maintaining social order and controlling mobility. Although digital communication has made positive contributions such as raising public awareness and making health services accessible during the Covid-19 period, it has also created some negative effects. Misinformation spread on social media (infodemic) triggered social panic and led to problems such as anti-vaccination (Özdemir & Çapık, 2024, p.49; Kerimoğlu & Keleşoğlu, 2023, p.520). In addition, the proliferation of digital tracking systems has raised serious concerns about personal data security and privacy (Sancakdar and Kamer, 2024, pp.109-132). This situation shows that in order to use digital tools more effectively in crisis management, not only technological solutions but also ethical approaches should be developed.

Such examples show that digital media can be used as an alternative and complementary source of information in times of crisis, democratizing the dissemination of news and enabling the creation of a more comprehensive and inclusive narrative during disasters.

However, digital media is not only a tool in crisis management processes, but also a critical platform for fact-checking and countering disinformation. While rapid information dissemination is advantageous in times of crisis, it can also lead to the uncontrolled spread of misinformation and rumors. As in the case of the Kahramanmaraş earthquakes, independent fact-checking initiatives and increased digital literacy are needed to mitigate the effects of disinformation (Eyüboğlu and Kodak, 2023, p.532).

Digital media also raises ethical issues and privacy violations. The ethical dimension of the content shared on social media in times of crisis and disaster, especially photos and videos taken without the consent of the victims, has led to significant debates (Koçyiğit et al., 2024, p.237; Sarıhan, 2024, p.16). The mechanisms of social media platforms to monitor and remove such content are often insufficient.

This way, digital media changes the dynamics during a crisis or a disaster. Although this new dynamic provides many advantages in crisis communication and management, information distribution, relief organizations, and social cohesion, it also has its drawbacks such as the propagation of false information, ethical concerns, and violation of privacy. In this case, it is crucial to encourage the use of digital media, as well as the understanding of the ethical use of social media in crisis communication.

The role of digital media in times of crisis has been on the increase and therefore there is a need for designers to consider their responsibilities. Designers and platform developers are therefore expected to play an important role in minimizing these risks through proper design and policy measures that meet ethical requirements. The role of the designer in this case is not only to come up with beautiful designs and layouts, but also to come up with tools that will improve accessibility, reliability and user interaction. Some of the features that can make the user interface, platform or application easy to use include: Development of simpler user interfaces; Platforms that are suitable for different ages, culture, and technological infrastructure or that have multi- language interfaces; It can enhance equality in accessing information by ensuring that people with disabilities, and other people who may not be able to access digital tools easily are targeted specifically. Designing solutions for specific groups of people, for example, people with disabilities or vulnerable groups of people can enhance social solidarity. Also, integration of features such as notification for emergencies, interactive maps and integrated relief centers can make these platforms useful in the management of crises. Designers should also consider features that can help fight disinformation, such as showing evidence, tools for reporting errors, and training that would help users to identify reliable sources (Koçyiğit, 2024, p.72). Thus, the developers can create the mechanisms which will support the information verification and can avoid the dissemination of the misinformation that can lead to panic during the crisis. This is especially important in a crisis situation where unverified information can be spread quickly. In addition to meeting these technical and ethical challenges, designers have a unique chance to enhance social cohesion through the design of the platform. Digital media can be a source of comfort and unity, a way for people to give encouragement, participate in relief efforts or find psychological support during the tough times. These platforms should be designed with a good understanding of human behavior when it comes to crises, and should be simple, easy to use, and navigate to help reduce stress and increase productivity.

The Kahramanmaraş earthquake can be given as an example of how digital media can be beneficial and adverse in disaster and crisis management. Although the platforms have uniquely enhanced communication and donation, there were some challenges such as political and ideological use of these platforms which divides the society (Özbilgin et al., 2023, pp.89-90). This dichotomy stresses the importance of the proper usage of digital media and their advantages and disadvantages.

Therefore, the use of digital media in crisis management cannot be separated from the involvement of technology developers, designers, policy makers, and users. The use of technology, design, ethics and crisis management is essential in the development of multi-disciplinary approach to address this problem.

The following principles can be suggested to achieve the optimal use of these platforms for the improvement of crisis resilience and resilience of society: ethical design, digital literacy and participatory culture. Designers especially have a crucial role to play in the development of these tools to not only make them efficient but also fair and representative of the human experience in the case of crisis. Their contributions can greatly affect how societies deal with the uncertainties of disaster scenarios and learn from the negatives to accumulate and act in concert. Designers are also involved in improving these processes to the user experience-oriented solutions and in enhancing social resilience.

5. Conclusion

This paper shows the existing gaps in this area of practice while focusing on the role of digital media and interactive platforms in crisis and disaster management. In Turkey, it is observed that an digital platform where information and archives on crisis and/or earthquake-like disasters are gathered in a single center, enriched with user contributions, including interaction opportunities and facilitating access to the information needed has not yet been sufficiently developed. This deficiency points to the need to create digital products that would enhance information sharing, coordination and solidarity in the disaster management process. As a result of the impact of the digital revolution, the potential of interactive media in information sharing and crisis management can greatly enhance the social preparedness to disasters. However, for this potential to be fully realized, the technological infrastructure needs to be enhanced, accessible platforms developed and media literacy improved.

The study adds to the existing literature by examining the use of digital media in crisis management from a broader perspective. It offers a conceptual

framework for the application of digital tools in disaster management and highlights the need to involve users in the design process. It also underlines the need for interdisciplinary thinking and assesses the role of designers in a more holistic way. Therefore, designers are vital in the creation of the digital platforms. Designers are in charge of creating user-friendly interfaces that will help users find the information they need and collaborate easily in the event of a crisis. In interaction design, they should ensure the effectiveness of the platforms with information verification tools, accessibility features, and appropriate visual language for the culture. Furthermore, optimizing such platforms for all ages, people with disabilities, and low digital literacy users will restructure social solidarity as a more inclusive model. This task requires not only technological and artistic expertise, but also ethical judgment. Creating environments that enhance credible sources of information, fighting disinformation, and helping people get psychological support is essential in creating a better society in disaster management processes.

The study results indicate that digital media can bring numerous advantages to the crisis and disaster management process such as speeding up information delivery, strengthening social bonds and empowering people. However, some problems including the problem of disinformation and ethical dilemmas should be stressed and plans should be made to tackle these problems. To build on the role of digital media in crisis management, digital literacy should be enhanced and interdisciplinary work should be promoted. It is recommended that in future work, the possible applications of digital media platforms for providing psychological support following a disaster and the consequences of these applications should be explored. Moreover, it would be useful to investigate how artificial intelligence and big data analysis can be improved for crisis management. The effects of these technologies on information verification, aid coordination, and response in crisis management should be examined.

In conclusion, digital media is a revolutionary tool that enhances information transmission, coordination of services and solidarity in disaster and crisis management. To this end, it is essential that designers adopt creative, comprehensive and moral approaches to ensure that these tools are used to the fullest advantage for individuals and societies. Designed more accessible, reliable and ethical platforms will definitely change the way of crisis management and how individuals and societies deal with these crises. In the future, research and practices that extend the role of digital media in crisis management will add to the knowledge in the literature and help societies to become more ready for crises.

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chapter 10

Interactive Infographic Use in Digital Media¹

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Summary

Today, the need to understand, classify, store and share information among the increasing mass of information is increasing day by day. Presenting information in a comprehensible way has become one of the main issues of today. Here, digital media tools are the primary outlet and focus of sharing information. At the same time, keeping a record of personal data has become the digital agenda of today's people. Interactive infographics offer freedom to learn through experience and access information at any time by interacting users with understandable presentations of big data over a network connection. In addition, with mobile devices, users can interact with the data kept with a series of task tracking systems such as health, finance, sports, personal development, etc. every moment of every day with interactive infographic presentations. Again, wearable technologies are in contact with users through interactive infographics with different dimensions. With virtual and augmented reality glasses, infographic data appear in virtual wanderings, and personal health data are processed with smart watches and bands. Through these devices, which are an integral part of our digitalized lives, interactive infographics largely meet the task of conveying information in effective and understandable presentations. This study examines infographics in a general framework and specifically examines the use of interactive infographics in digital media.

Keywords: Digital Media, Infographic, Interaction, Interactive Infographic.

¹ "This study is based on the first author's master's thesis entitled Interactive Infographic: The History of Independent Cinema in Turkey" prepared by the first author under the supervision of the second author."

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1. Introduction

Since the early 20th century, the popularization of infographics has been similar to that of the previous century. New contexts and uses for infographics have supported texts as visual aids in illustrated magazines, popular science books, wall graphics, schools, exhibitions and corporate communications in business environments.

Aesthetically modern design played an important role in the 20th century. Many designers have tried to find a contemporary visual language, including the creation of infographics. A second, even deeper transformation occurred with the development of digital technologies. Thus began a media technology revolution that has influenced the practice of information visualization in ways that have not been fully understood to this day. Since the 1990s, intensive research on visualization has taken shape in computer science. In this context, not only new forms of visual representation have been developed and tested, but also questions related to the readability of visualizations have been examined. This is not only about the accurate representation of facts and data, but also about the exploration of large amounts of data, its accessibility and its support for human-computer interaction. This process started in the late 20th century and continues to expand today .

In the 21st century, advances in information and technology position all humanity at the center of a vast network of communication and interaction. The messages, e-mails, news, social media posts and countless content read throughout the day impose multiple tasks on today's people such as filtering, memorizing and storing information. Converting useful or needed data into knowledge is one of the most fundamental daily life practices of this age. In this century of information explosion that makes meaningful learning increasingly difficult, quite different experiences are needed in the process of transforming data into knowledge, understanding and wisdom.

The combination of image and text has existed throughout human history. From visual storytelling in murals and hieroglyphs to sacred books, desktop publishing and, of course, online.

Mobile device technology has carried the effectiveness of visual and text use to a different communication model through social media. While even simple content is presented with visuals, graphics, pointers and emojis, it is clear that the presentation of complex information should be supported by visual communication tools and methods. In the permanence of information; the necessity of designing information is now widely accepted

The act of design begins with the practice of producing solutions to the problem encountered. The process is completed with the right tools, the right planning and effective visual solutions in the right environments. Infographics are the most accurate information design output in presenting complex information with easy and understandable content. Organizing and visualizing information and presenting it in functional and eye-appealing designs make infographics preferable.

There is no doubt that today there is an enormous amount of information, some of it useful, some of it harmful and some of it meaningless. Therefore, with this enormous amount of information, people need a way to filter out irrelevant information and pay attention to important information (Krum, 2014). In this situation, how information is transmitted and how people receive it becomes more critical. With the advent of electronic products, the dissemination of information has become more accessible and the mediums of information dissemination have diversified (Möcander, B., & Shen, N., p.6, 2023). People can now access the information they want at any time through their personal devices, produce and share information at the same speed, and act as an intermediary that directly or indirectly contributes to the dissemination of information, making it heard and visible.

2. Digital Media and Interaction

At the beginning of its emergence, digital media technology has attracted the attention of all segments of society with its characteristics of good interactivity, large amounts of information, flexible expression and easy dissemination (Yang, X., 2023, p.2).

The concept of digital media is used to refer to materials such as all kinds of writing, audio, video, photo content that are digitally encoded in a computer environment. The features of digital media such as interaction, easy access to information, global structure that eliminates the problem of time and space make it an indispensable part of our lives. (Kara, E.Ş. & Nisan F., 2022, p.12). Digital media refers to media that store or transmit information digitally with the help of electronic devices and reproduce it pictorially or symbolically (Pallack, 2018: 28, cited in Kara, E.Ş. & Nisan F., 2022, p.11).

Yang (2023) mentions that, in general, digital media has two meanings, one is the communication carrier of digital information, including graphics, text, images, video, animation, audio and other forms; the second is to index information content, including the process of information collection, storage, processing and

distribution. Nowadays, digital media has a wide variety of forms of expression, including network media, digital film and television, multimedia, etc., with digital technology and information technology as the support and screen as the presentation carrier (*Christ, N., 2020, cited in Yang, X., 2023, p.2*). Digital technologies, which are accessible to users of almost all ages, are now an indispensable part of everyday life. Due to the widespread use of digital media technologies and the features they bring with them, they have introduced new living habits into human nature.

2.1. Characteristics of Digital Media

In order to draw the framework of the concept of digital media, which has a wide scope, it will be important to mention its characteristics. These features are as follows.

- 1) Interactivity: The most striking feature of digital media communication is interaction. Instead of the linear communication of traditional media, "human machine human" interactive communication is realized through the interface. In the process of information dissemination, the audience is in active point selection rather than passive acceptance. Different information selection audiences will receive different feedbacks. Now web design, game interactive role design, digital interface design, screen design, multimedia advertising design and so on are the concrete carriers of digital media interaction.
- 2) Integration: Digital media integrate graphics, text, sound, animation, images and other symbols. Based on computer digital processing, digital media are visual and auditory. Digital media communication not only needs the support of computer technology, information technology and media technology, but also needs to be combined with the humanities and arts. For example, the interface design of software and hardware and the design of multimedia products need the collaboration of technicians and designers. Technicians are responsible for the architecture and coding design of the program, while designers are responsible for the visual design of all the visual content of the program.
- 3) Digitization: A bit is the basic form of digital media that is processed, stored and transmitted by a computer. The bit is relatively easy to copy and compute, can be rapidly disseminated and reused, and can be mixed (*Yang, X., 2023, p.2*). These characteristics are the essential basic elements of a digital media.

2.2. Interaction

"Interactivity" and "interactive" media were on everyone's lips in the late 1980s and especially in the 1990s - in politics as well as in business and science (Quiring, O., & Schweiger, W. , 2006, p. 5).

Jäckel describes interaction as taking place in reaction sequences where "the activity of one person triggers the activity of another person". Since such interaction processes can also be realized through technical means of communication such as telephones or networked computers, the physical presence of interaction partners is no longer considered a necessary component of the definition (Quiring, O., & Schweiger, W. , 2006, p. 6).

According to Sims (1999), interactivity refers to the facilities provided by a computer-based application to allow the user both control of the process and communication with the content. This communication involves both the user initiating an action and the computer responding to that action. The interactive role of the computer is to enable its processing power to interpret and respond to a user's action, thus creating a human-computer dialog. Interactivity is when a new media program, website, kiosk or multimedia presentation allows the user to control the content in some way. Interactivity has to involve and motivate the user to explore the product. The interactive features of new media should provide opportunities for the user, such as exploration and collaboration: Well-thought-out interactivity knows its audience, understands its knowledge base and uses terms and expressions that are commonly understood by the audience. Good interactivity also takes into account the audience's situation . What determines the ways of interacting with a product is the type of interaction it is designed for.

2.3. Types of Interaction

Another way to conceptualize the design space is through the types of interactions that underlie user experience. Essentially, they are the ways in which a person interacts with a product or application. Preece et al. In 2002, Preece et al. initially identified four main types of interaction: instructing, talking, manipulating and exploring. Today, Christopher Lueg et al. 2019 added a fifth type, which they define as responding. This refers to proactive systems that initiate a request in situations where the user can respond, for example when Netflix pauses someone's viewing to ask if they want to continue watching. Deciding which types of interaction to use and why can help designers build a conceptual model before going into a specific interface, such as speech-based, gesture-based, etc. The details of these five types of interaction are as follows.

1. *Instruction* - where users give instructions to a system. This can be done in a variety of ways, including typing commands, selecting options from menus in windows or on a multi-touch screen, using voice commands, gesturing, pressing keys or using a combination of function keys.
2. *Conversation* - users have a dialog with the system. Users can speak through an interface or type questions that the system answers with text or speech output.
3. *Manipulation* - users manipulate the image by manipulating objects (e.g. opening, holding, closing, placing) in a virtual or physical space. Users can gain knowledge about how to interact with objects.
4. *Exploration* - is the movement of users through a virtual environment or a physical space. Virtual environments include 3D worlds and augmented and virtual reality systems. They enable users to build on familiar knowledge by physically moving around. Physical spaces using sensor-based technologies include smart rooms and environments.
5. *Responding* - When the system initiates the interaction and the user chooses whether to respond or not. For example, users can choose to look at the information that pops up on their phone or ignore it .

Don Norman, one of the most influential names in the field of user experience design, in his book *The Design of Everyday Things*, states that the basic principles are also very important in designing interaction control processes. He defines these principles as follows.

1. *Visibility*: Ensuring that users can easily see the key elements so that they know what actions are possible.
2. *Feedback*: Providing users with immediate responses to actions to validate results and guide them.
3. *Restrictions*: Limiting the actions users can take to prevent errors and demonstrate correct usage.
4. *Mapping*: Create a clear relationship between controls and their impacts to support usability.
5. *Consistency*: Using familiar elements and patterns to make interactions predictable and understandable.
6. *Possibilities*: Designing objects in a way that suggests their use and helps users know how to interact with them intuitively.
7. *Beacons*: Providing clear clues or indicators that guide users on how to interact with elements and where actions should take place (www.interaction-

design.org). Here, the concept of interactivity is undoubtedly an important topic.

2.4. Interactivity

Bill Moggridge, co-founder of the American design firm IDEO, coined the term interaction design in the late 1980s, realizing that design activities could no longer be contained within the classical design disciplines of industrial, information or communication design (Buurman, G. M., & Vannotti, S. M., 2008, p. 126).

Interaction design is a relatively young field, but it can still be considered a design discipline. As such, it has relationships with other design disciplines and developments in design fields, even things that existed before the first computer was built (Löwgren, J., & Stolterman, E. , 2004, p. 153).

Interaction design as a term was first used by Bill Moggridge and Bill Verplank in the 1980s (Akoğlu, 2009, p. 47). The focus is on how people interact with technology. The aim is to enable people to understand what can be done, what will happen and what is yet to happen. Interaction design uses principles of psychology, design, art and emotion to provide a positive and enjoyable experience . Interaction design (essentially story creation and storytelling) is both an ancient art and a new technology. Media has always influenced the telling of stories and the creation of experiences, but now offers new media possibilities and opportunities not previously addressed in the history of interaction and performance . Zanini (2006) defines interaction design as a discipline that studies, designs and practices the increasingly complex interaction between people and digital reality.

More specifically, Moggridge (2006) defines interaction design as the design of anything subjective and qualitative that is digital and interactive, where the main goal is to create designs that are useful, desirable and accessible. On the other hand, Moggridge (2006) argues that interaction design can be seen more narrowly in relation to the experience and foundations of disciplines dealing with aesthetic and qualitative values, such as architecture, industrial design and graphic design. According to Verplank (2006), interaction design needs to answer three basic questions. These are "how to do", "how to feel" and "how to know" (Akoğlu, 2009, p. 47).

In the last two decades, many modern digital technologies have reached the mass market in just a few years, especially personal computers, the World Wide Web, wireless communications and networks. This has opened up a world of

opportunities in the global mass market; technology is today used to a much lesser extent than its potential, due to the ever-widening gap between technological capabilities and the ability to use them. Digital technology today is a parallel reality to the real physical one . Interaction design reveals a number of main factors - first, the user should be able to control the app and the app should be designed to engage the user; second, the user should have some freedom and third, the app should be designed for a specific audience

Stating that it is useful to know some terms that are closely related to interaction design, Buurman & Vannotti list these terms as follows.

Human-Computer Interaction (Human-Machine Interaction): This field focuses on the design of human-machine interaction. The field of human-machine interaction is a branch of computer science and has an increasingly close connection with interaction design.

Software Ergonomics (Usability Engineering): Software ergonomics is the study of the usability of computer programs. It is a subfield of human-machine interaction.

Experience Design: The term experience design describes the comprehensive user experience as a fundamental design dimension.

Interface Design: From a design perspective, the concept of interactive design outweighs the term interface design because the process, which is a central design task, is more clearly articulated here.

Information Architecture: Information architecture is the task of structuring an information or communication system (Buurman, G. M., & Vannotti, S. M., 2008, p. 127). The process of developing and publishing infographics is also called information design or information architecture (Smiciklas, 2012, p. 4). Here, a series of interaction processes are designed to reach the user, and users are confronted with a system and interact with it.

2.5. Interactive Design Process

The interaction designer questions the presentation of complex information in two and three dimensional space, as well as access, customizability and control by the user. One of the biggest challenges in terms of content is the question of how complex information and phenomena can be better represented and thus perceived through graphical representations (Buurman, G. M., & Vannotti, S. M., 2008, p.131).

In order to minimize the margin of error when performing interactive designs and to design the right interface designs that will address the needs of the user,

it is useful to carry out the design process within the framework of a number of activities. The interaction design process includes four basic activities:

1. Identifying needs and defining requirements.
2. Develop alternative designs that meet these requirements.
3. Create interactive versions of the designs so that they can be evaluated.
4. Evaluate what has been built during the process.

These activities are designed to inform and iterate on each other. For example, measuring the usability of what is built in terms of whether it is easy to use or not provides feedback on whether certain changes need to be made or whether certain requirements have not yet been met (Preece, J., Rogers, Y., Sharp, H., 2002, p. 12).

It is defined in more detail in Donald A. Norman's book "The Design of Everyday Things". According to Norman (2010), the most important principles in the design of interactive products are the visibility of functions, feedback of actions, consistency of interface elements, perception of objects and direct access to controls (Norman, 2013, p. 10). Interaction design covers the whole process in which digital interfaces are planned, designed and coded by experts, taking into account the user experience.

2.6. Types of Interactive Visual Displays

Information visualization aims to meet the needs of users who, together with computers, use graphical interfaces that exploit the remarkable perceptual ability of human visual systems to visually explore data at various levels of abstraction. Information visualization systems seem to be highly useful when the user can modify the input data or manipulate the generated view. Interactions facilitate data exploration and can reveal relationships that may remain hidden in a static view.

Riccardo Mazza, in his book "Introduction to Information Visualization", classifies the types of visual representations as follows, depending on the type of interaction a user can perform.

- Static representations do not allow users to perform any type of interaction and only a single, immutable view is created.
- Manipulable displays are displays that users can manipulate by zooming, rotating, panning, etc.

Transformable representations allow users to manipulate the input data of representations during the pre-processing phase, for example through data filtering. These manipulations often affect and modify the generated images.

Manipulable Displays: The interactive visual presentation process can be manipulated when the user intervenes and manipulates the generated image. The most common technique is to apply geometric transformations, such as zooming in on a specific part of the view or rotating the image in three-dimensional view. Apart from zooming and rotation, there are other techniques for view manipulation such as panning, overview + details, focus + context.

Transformable Representations: An interactive visual representation can be defined as transformable if the user intervenes and manipulates the stages of pre-processing and/or visual mapping. This is very useful in all exploratory analysis, when users do not know the content of a collection or have a limited understanding of how data is structured, or are limited when looking for interesting structural features. The opportunity to block input data or mapping is very useful because it can help explore and identify data features and lead to interesting insights. Filtering, data reorganization, dynamic queries, magic lenses and feature explorer are some of the most common transformation techniques (Mazza, 2009, pp. 106-116). Interactive visual representations are digital representations that users activate with actions such as typing, clicking, dragging, tapping, and sound, ranging from simple representations to manipulative and transformative ones.

3. Overview of Infographics

Petroglyphs, the oldest forms of non-verbal communication created by prehistoric societies, are found on all continents except Antarctica. They evolved into more advanced pictograms, such as Sumerian cuneiform and Egyptian hieroglyphs, which led to the linguistic writing we use today.

Throughout history, image and text have remained inseparable. With the advent of desktop publishing in the late eighties and the emergence of the field of information design in the nineties, the use of infographics has become widespread again.

The term infographic, which originated in the 1980s, is a combination of information and graphics that excludes a decorative or artistic purpose. It refers to the main task of infographics: to inform visually, to present information graphically . The simplest definition of infographic, which translates to

"Information Graphic" in Turkish, can be given as the visualization of complex information in an easy-to-understand way. A traditionally defined infographic is "a visualization of data or ideas that attempts to communicate complex information to an audience in a way that is quickly consumed and easily understood" (Smiciklas, 2012, p. 3). For this reason, it facilitates the understanding of multi-layered texts with graphical solutions.

Infographics are a special form of visualization that combines words and pictures to convey a specific message. Infographics can be used to achieve several goals. For example, they can be used to inform, persuade, teach or mobilize people. However, to qualify something as an infographic, by definition, it must inform (Few, S., 2011, p. 13). According to Weber, the main function of an infographic is to display information in a visual way. Another main function is to inform; it can be done in three different ways: *narrative, explanatory and descriptive*. Infographics often use 'visual storytelling' or 'storytelling with data'. Infographics are also one of the most fun ways to make information understandable.

3.1. Anatomy of Infographics

Infographics basically consist of 3 main parts.

1. Visual: It consists of color coding, graphics and reference icons (Roy, 2009). The visual aspect of infographics has a strong relationship with design. Infographic design also has priorities related to attracting, grasping and retaining attention based on the goals and objectives of infographics (Arum, 2017, p. 2).

2. Content: It consists of timelines, statistics and references. Infographic content can be divided into three parts: introduction, main event and conclusion (Roy, 2009). The introduction should introduce the reader to the infographic topic. This is usually a combination of a title and a short paragraph of text. The introduction can include several data visualizations that help with the laying foundation.

The main activity for an infographic should be eye-catching for the audience and contain new information. This part is usually dominated by a visual part of the infographic. The last part of the content is a conclusion and the infographic design should take the reader to the end of the screen and complete all the messages (Arum, 2017, p. 2).

3. Knowledge: It consists of facts and inferences (Roy, 2009). Information in infographics is about showing facts and making inferences from the content

(Arum, 2017, p. 2). Regardless of the type, the general structure of all infographics consists of these three parts.

3.2. Infographic Design Framework

The process of designing an effective infographic begins with carefully considering the information, idea or feeling that is to be conveyed in the message. After selecting the message, it is necessary to understand the graphic tools that can be used to convey the message and the rhetorical tools that can be used to tell an effective story (Hart, 2013).

Rajamanickam (2005) characterizes this process as the 'Design Framework'. He considers the design framework under three main headings as the first step in creating infographics and depicts this framework with the diagram below (see Figure 1).

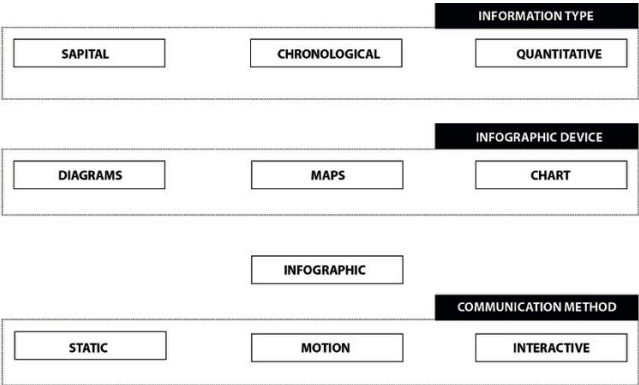


Fig 1. Infographic Design Framework
Translated from Rajamanickam (2005, p. 9).

First of all, the type of information should be known. When designing the infographic, the type of information will determine which tools and which communication method will best convey the information.

3.3. Infographic Forms

In creating infographics, the content needs to be supported by a set of auxiliary visual tools that will support the type of information to be conveyed and the content needs to be visualized with these tools. This process is the second step of the design framework.

The visualizations frequently used in this step have been brought together in

a data catalogue created by Severino Ribeca. Consisting of 60 categories of visualization tools, this data catalogue is translated into several languages and is available at <https://datavizcatalogue.com>.



Fig. 2. Data Visualization Catalog
(<https://datavizcatalogue.com>, 20.05.2019)

Data visualization tools are the main auxiliary visual tools that meet the needs of infographics depending on the type of information. Infographic tools are classified under 3 main headings.

Diagrams

Icon Visually shows simplified reality.

Sequence: Indicates the succession of events, actions and causal relationships.

Process: Shows step-by-step interactions between both space and time.

Timeline Shows chronological progression

Views: Shows details or viewpoints not normally available to the human eye, such as cutout, axonometric views.

Maps

Locator Indicates the location of one thing in relation to something else.

Data: Shows quantitative information related to its geographical location.

Schematic Shows a summary representation of a geography, process or sequence.

Schematics

Flow Shows changes in magnitude over time.

Bar Shows a proportional comparison of magnitude.

Pie Shows the distribution of parts of a whole.

Organization: Shows the parts in a structure and their relationships with each other (Rajamanickam, V., 2005, p. 9)

Data visualization tools are a visualization method used in many infographic presentations. It is frequently used in infographic designs, especially for content with large numerical and proportional data.

3.4. Infographic Communication Method

The last step of the design framework is to decide which communication method to design the infographic with auxiliary visual tools appropriate to the type of information determined. It is very important to make this choice by realizing that different results can be achieved in each of the communication methods and that there are methods with different effectiveness, and to determine which method will best convey the selected content.

Static: Information presented at a glance. Newspaper graphics, product manuals, promotional diagrams are static examples. A static infographic will not be sufficient for large data sets that require access to real-time information. While some infographic examples can be condensed on a single page, in cases where there are multiple information designs, it is ideal to produce them in landscape orientation so that they can be printed and used in a presentation layout. Creating the content in a vertical orientation for posting on blogs that require the viewer to scroll will make the infographic more versatile (Lankow, J., Ritchie, J., & Crooks, R., 2012, p. 65).

Animated: Instances where information is progressively presented in a linear sequence. Motion graphics are becoming increasingly popular for inclusion in interactive content for the web such as HTML5, CSS3, and advanced JavaScript libraries are becoming more widely used, giving us an increasing ability to use augmented reality style overlays over video. Some of these cutting-edge applications of motion content have huge viral potential just for new production methods .

Interactive: Web-based information graphics that are generally narrative, instructional, simulative or investigative in nature. Infographics, which previously existed only in static versions in printed media, have become widespread in interactive and animated formats in connection with technology. Before starting

to design infographics, it is very important to decide which media format they will be presented in. The decision maker in shaping the whole process will be the media format determined here. The design dynamics of static, animated and interactive infographics are quite different from each other.

3.5. Infographics by Complexity Levels

There are six different media formats in which infographic designs are displayed. Although the majority of infographics we see online are static images, many designers have started to use storytelling and data visualization in different ways (Krum, 2013, p. 33). Figure 3 below shows the ranking of infographics according to their level of complexity. While static infographics are at the beginning, interactive infographics are at the top. Planning by considering the following media formats in systematizing and presenting the content subject to infographic design will ensure that the information desired to be conveyed reaches the user in a more accurate and understandable way.

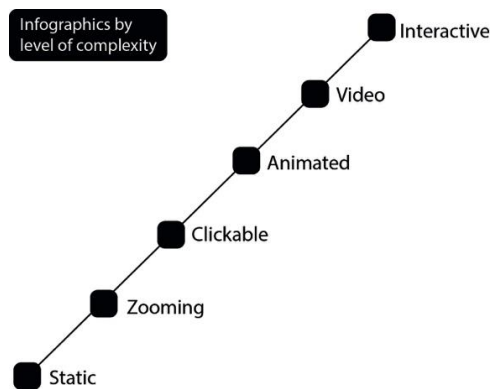


Fig 3. Six types of infographics in order of increasing complexity

Translated from Krum, (2013, p. 33).

Static Infographic

Static infographics are the simplest and most common form of infographic design, and are at the beginning of the levels of complexity. While the purpose of the content varies, the overall size and shape of the infographic is often dictated by the demands of publication in blog content or in a magazine (Lankow, J., Ritchie, J., & Crooks, R., 2012, p. 59). The final design is saved as an image file for easy paper printing and online distribution. Most software applications have the ability to save the final design as a static image file (JPEG, PNG, GIF) for easy

viewing of a PDF file in a browser via email (Krum, 2013, p. 34).

One of the main benefits (and reasons for the ubiquity) of static content is the relative ease of creating a static image versus an interactive interface . Another important factor is the ease of sharing static infographics online. Neither special applications nor a plugin is required to view them

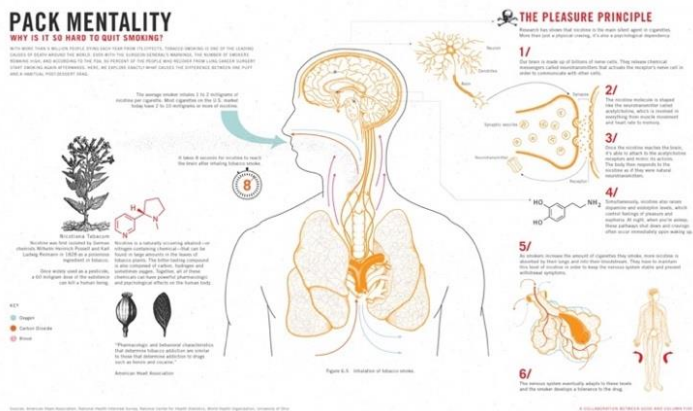


Fig. 4. Static infographic example on "Why is it so hard to quit smoking?", (www.columnfivemedia.com/work-items/infographic-why-is-it-so-hard-to-quit-smoking Access date: 22.05.2019).

The infographic in Figure 4 is an example of a static infographic that tries to reveal the reasons for not being able to kick the smoking habit despite the fact that it causes shortness of breath. Oxygen, carbon dioxide and blood are color-coded in a triad. Breathing and blood flow are represented by the direction of the arrows and color coded to show circulation in the body.

Once a static infographic image is published online, most readers share it online using the built-in function on social media sites to share images. Major social media sites (Twitter, Facebook, Pinterest, Tumblr and LinkedIn) have the ability to include static images in the status update function (Krum, 2013, p. 35). Static infographics are the most widely used and the easiest to access and understand. Printed and visual media is the most frequently used type of infographic for informing, disseminating information, and making information visible in many institutions and organizations.

Infographic with Zoom

Zoom infographics add an interactive layer to enlarge online static infographics, making it easier for readers to zoom in to read details. A large design is reduced in size so that the entire design can be viewed individually on the screen, and zoom controls are made available to allow the reader to clearly see small details. The zoom viewer the reader to zoom in on details, and some keep a thumbnail of the overall design in the top left corner. This thumbnail shows the reader which part of the design is being shown and allows them to easily navigate to other parts of the design (Krum, 2013, p. 35). A zoom interface is usually created by starting from a large image file of a static design and then adding the interface controls as part of the web page. Custom web page code such as HTML5 and JavaScript can be used to create the user interface (Krum, 2013, p. 37).

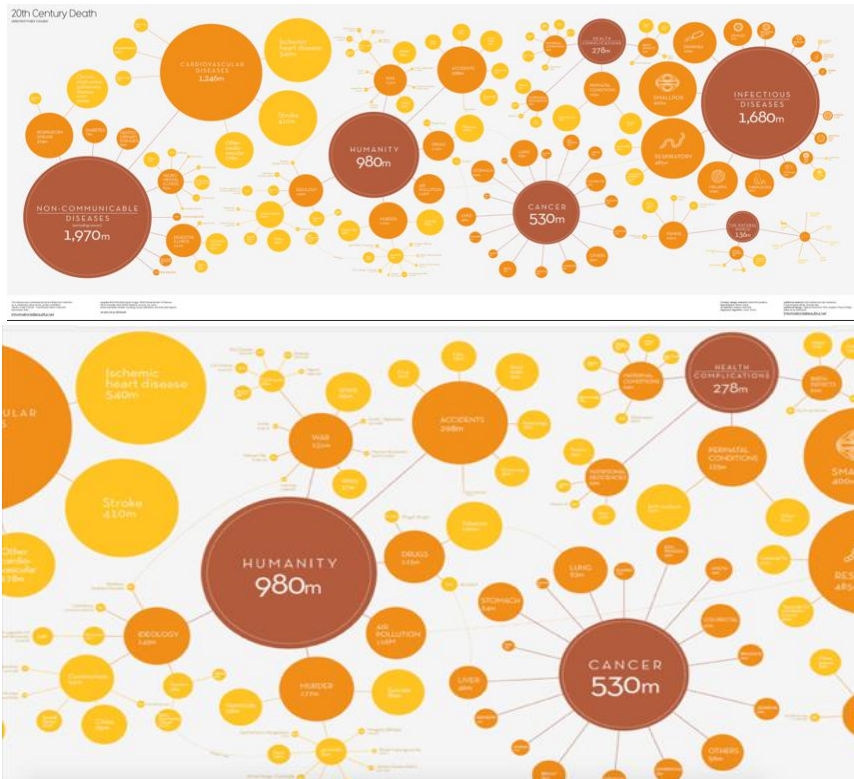


Fig 5. Example of a zoom infographic on 20th Century Death
(<https://informationisbeautiful.net/visualizations/20th-century-death/> Accessed on 03.01.2018).

Figure 5 shows an example of a zoom infographic visualizing the main causes of death in the 20th century. The causes of death have been identified and the other causes within these causes are revealed with their rates as we zoom in. For visualizing data with such detailed content, zoom infographics seem to be an effective solution to fully convey the context to the reader. A zoom interface is usually created by starting from a large image file of a static design and then adding the interface controls as part of the web page. Custom web page code such as HTML5 and JavaScript can be used to create the user interface (Krum, 2013, p. 37). It offers the possibility to zoom in and easily access detailed information on the same page, as well as the possibility to zoom out and see the whole data and design.

Clickable/Touchable Infographic

Clickable infographics also add a clickable user interface layer to static infographic designs with an HTML link to a specific region of the design. This interface is most often rendered as an HTML Image Map that is interpreted by the web browser to identify specific regions of the static image by their pixel position as clickable to a URL address.

Designers take advantage of clickable designs to remove secondary information and additional details from the primary infographic design. The designer can use clickable infographics as a clean and easy to read method. Readers who want more information can go deeper by clicking links, but the main knowledge base remains simple and easy to understand .

Another variation of this type is that many programs with the ability to generate HTML Image Map files can export the file in PDF format and retain the clickable functionality. This means that a designer can save the clickable infographic in a clickable PDF file. The resulting PDF file is then made available for sending via email or downloading.

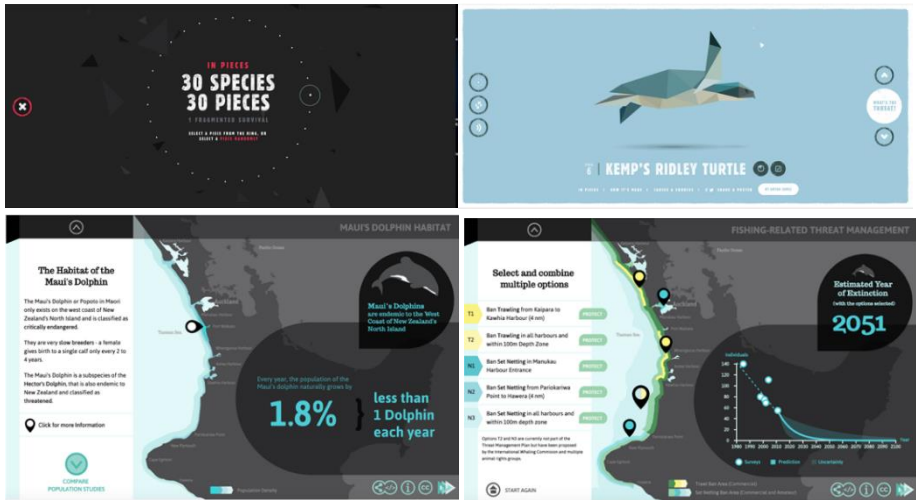


Fig 6. Sipecies in Pieces click-through infographic example navigation pages screenshot

(<http://species-in-pieces.com/> Accessed on 18.01.2018).

In Figure 6, 30 endangered animal species are visualized and designed with origami forms consisting of 30 pieces. Click on the relevant buttons to see their habitats, access detailed data and see another species. Between the pages, information on how the origami pieces are made and their habitats are presented with graphics. The other click area offers the possibility to save the image as a desktop background for different screen sizes.

A variation of this type of design style is the pop-up infographic style. This occurs when the reader, instead of clicking on an area of the infographic to access additional information, hovers the mouse pointer over the relevant areas of the design where information can be obtained. Both clickable and pop-up styles present a significant disadvantage (barrier). The additional functionality of clickable regions and pop-up information is that it is only displayed on the original landing page, which contains the extra HTML code. When a reader shares an infographic image from another site, only the static image file of the original file is shared.

Animated Infographic

Animated infographics create some movement or change in the design as the reader watches. A bar chart may have bars that change color for a growing, animated character. These are different from video infographics because they

are not video files. They can exist as objects on the web page, but in the form of HTML code or an animated image file to create animations.

Using the animated GIF image file format has an important additional advantage. Because the animation is fully contained in the image file, the animation functions when published on other sites and blogs. An animated infographic is the opposite of other designs created using code, which are more difficult to share.

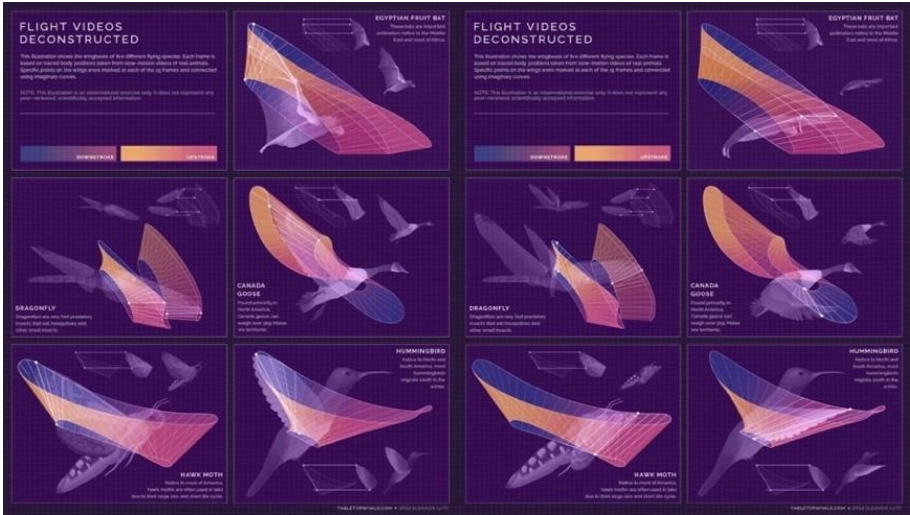


Fig. 7. Example of animated infographic titled Flight videos deconstructed / (Flight videos deconstructed), Elaonar Lutz, 2014.

(<http://tabletopwhale.com/2014/09/29/flight-videos-deconstructed.html> Date of access: 20.01.2018)

The animated infographic example in Image 7 was created by creating a GIF file format and obtaining a continuously moving animation with a repeating loop. This motion image makes the infographic more eye-catching. Using the animated GIF image file format has an important additional advantage. Because the animation is fully contained in the image file, the animation functions when published on other sites and blogs. An animated infographic is the opposite of other designs created using code, which are more difficult to share.

Video Infographics

Video infographics are still fairly new but are rapidly gaining momentum online due to the ease of availability on video sharing sites such as YouTube and

Vimeo. Many of the most popular online video infographics are made using off-the-shelf software applications such as Microsoft PowerPoint, Apple Keynote and Prezi.

The criterion of the control option also makes animated infographics interactive, as the user has the possibility to control the visualization with the start and stop button. According to this definition, an animated infographic without a control tool is not interactive. However, it cannot be considered static because of the animated image sequence. Static is dynamic, but not necessarily interactive. It marks an animated sequence of images that requires no interaction from the user and also does not offer him the opportunity to interact. This type of graphics is mainly used on television, but also on the web, including product presentations for tablet PC applications (Weber, W., & Wenzel, A., 2013, p. 11). It is a type of infographic that is frequently encountered in informing the public through the media on important issues that concern the general public, such as public health, public service announcements, achievements and activities that prioritize the community.



Fig. 8. Olympic run result all the medalists: Men's 100-meter sprint / (Screenshots from video infographic on Olympics Run Result All the Medalists: Men's 100-Meter Sprint), Quealy, K. & Grohan R. 2012.
(http://www.nytimes.com/interactive/2012/08/05/sports/21lympics/the-100-meter-dash-one-race-every-medalist-ever.html?_r=0 Accessed 20.01.2019)

Figure 8 is an example of a video infographic that compares the male 100-meter runners who won medals in the Olympics with Usain Bolt's record of 9.63 seconds. In the infographic, Usain Bolt's record of 9.63 seconds shows how far behind Usain Bolt the medal-winning male 100-meter runners in the history of the Olympics have fallen in that second, according to the years and the records of other runners.

Interactive Infographics

Interactive infographics are designs that allow readers to control or view the data. They are also popular because they allow readers to interact with the data for much longer than static infographics. Figure 9 is an example of an interactive infographic inspired by Mason Currey's book "Daily Rituals". It is an infographic that visualizes the daily routines of creative celebrities (artists, writers and musicians) in 6 categories. The 6 categories that make up the daily routines have a filtering feature that makes the work interactive (see Image 9).

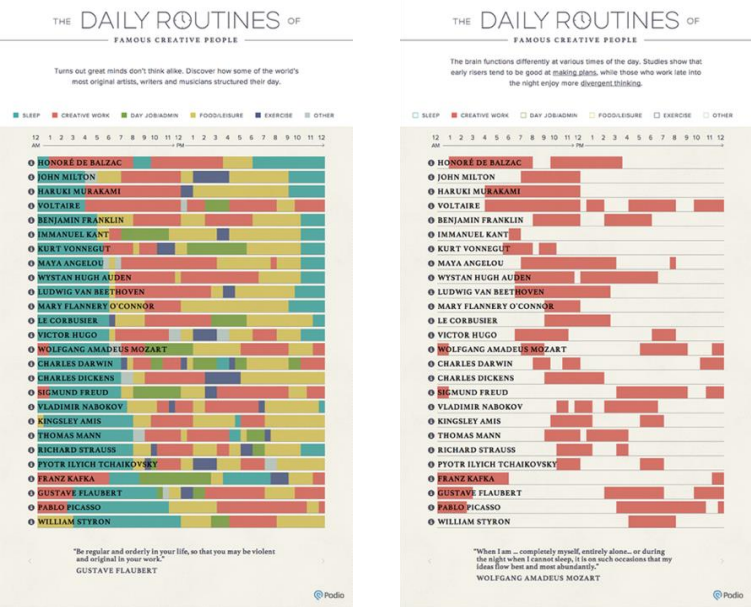


Fig. 9. Daily Routines /
Date of Access: 20.01.2018, <http://bit.ly/2XGTPHI>

Weber (2017) cites Nichani and Rajamanickam's (2003) approach to classifying interactive infographics. Nichani and Rajamanickam define four categories and the criteria for each of these categories are based on different underlying communication functions:

Narrative: 'The aim here is to explain to the reader the indirect experience of a story from beginning to end. Narrative infographics are a characterized story told from a different point of view.

The trainer explains step by step how things work. Here, the aim is to explain 'in such a way that the reader can step to the goal in order'.

Exploration (research) here the aim is to offer the reader the opportunity for research and discovery.

Simulations allow the reader to experience the purpose (cited in Weber, 2017, p. 252).

Some companies design and make interactive data visualization tools available for others to use. Tableau Software is one of the leaders in this field and offers the Tableau Public version of their product free of charge to users. The tool allows us to use our own data to create interactive visualizations and then embed the visualizations on websites (Krum, 2013, p. 56). Interactive infographics are one of the most effective solutions for dealing with data-intensive topics. By making the user active, it allows the experience to accompany the process of acquiring information.

3.6. Developing Infographics

Infographic is an information design output that emerges from the combination of visual-content-information trilogy. In the design phase of infographics, a design framework is created by determining the type of information, infographic tools and communication methods

According to Rajamanickam, in order to design a successful infographic, the following principles need to be planned correctly.

Organizing Information: Before proceeding with the design, it is necessary to have realistic and sufficient knowledge about the subject to be prepared for the infographic. The infographic should be planned according to the communication method to be presented and organized according to the scope of the information to be given. If there is a multi-layered information presentation, it should be decided how detailed information will be presented.

Making Knowledge Visible: The most basic strategy for an infographic is to make the information visible. The information to be given should be made visible clearly and concisely with visuals or text. Many design elements such as color, typography, page design, interface design, illustration, photography, icons, diagrams, charts, data visualizations function in making information visible.

Color Color can give life to the design, provide hierarchical order, highlight important information, and add emotion to the design with movement. In infographic design, color provides a multidimensional functional depth to infographics as a coding system. By creating hierarchy in the design and facilitating the presentation of multi-layered information, it makes significant contributions to comprehensibility.

Typography: It means giving visual form to a written idea. Typography is one of the most effective elements in giving personality and emotion to a design; the visual form it takes dramatically changes the accessibility of the idea and the reader's response (Ambrose, G., & Harris, P. , (2012)b, p. 38). The most basic function of typography in information design is to convey information to the user in a clear and understandable way by providing legibility. In the presentation of the content, typography provides many possibilities of use such as the effect of hierarchy with the use of different colors, sizes and thicknesses, the effect of fullness and space with different layouts in the design area, and the effect of creating a pattern (black / gray area) on the surface according to the characteristics of the selected typeface. Color works with typography in many ways to present information and contribute to the visual impact of the design as a whole. Color can be used to provide clarity, contrast and additional meaning in text elements, as well as to provide a logical and visual hierarchy (Ambrose, G., & Harris, P. , (2012)b, p. 134).

Creating Content: When designing infographics, the way in which the content will be presented should be determined in advance. Creating content means determining how the design will direct the target audience to information. Whichever communication method is chosen, static, animated or interactive, it should be aimed to create the most accurate design possible by considering the advantages and disadvantages of communication methods. The main purpose of information graphics is to convey information. Regardless of the method to be presented, it should be the priority of the information designer to convey information to the target audience accurately and effectively.

Simplification: Simple and direct presentations are easier to interpret. Irrelevant information in the presentation can easily confuse. The design should be easy and understandable. Direction pointers, maps, diagrams and charts should be prepared and placed in a simple way to help convey the content. Using icons that are too abstract may cause the user to miss the relationship of the icon with the context. Information designers should take these possibilities into consideration when planning their designs.

Adding Multiple Emphasis; Most of the information encountered in daily life contains a significant amount of multiple emphasis. When conveying information in infographics, instead of just giving enough information and leaving the main details to the audience, the audience can be made to receive the message more easily with multiple emphasis to strengthen the flow.

Emphasis is used to attract and direct attention. Multiple emphasis can be given by contrasting areas of color, areas of shading , arrows, changes in size, forms around objects, complexity, elaborate details, directionality, imbalance, isolation, drawings, lines, position or placement of elements, repetition .

To show the Cause and Effect Relationship; In order to clearly understand a situation, it can be very useful to learn how and why that situation arises. An infographic describing an event should show the audience the underlying causes of the event and the results that have been encountered and may be encountered. In a cause-and-effect infographic, the user should be able to find the answers to the reasons that may come to mind. The subject should be handled in its whole framework and should be cited with references.

Creating Integrated Graphics; Details that are not directly related to the content should not distract attention and affect reading. Comparative graphics should stand side by side within the line of sight, making it easier to follow (Rajamanickam, V., 2005, pp. 10-11). Rajamanickam defines all these principles as important steps in developing a successful infographic

Roy mentions 5 steps to develop a successful infographic (Roy, 2009).

Skeleton and Flowcharts: Infographics should be approached like any other form of design. It is helpful to use flowcharts to group related data together and visualize the flow of information, creating a skeleton of words or arrows. Since infographics are often complex, flowcharts simplify the process and tie everything together precisely.

Developing a Color Scheme: A color scheme is important to convey a wide variety of messages while keeping the reader engaged in the infographic. With huge and complex infographics, readers will quickly become confused and their perceptions will be all over the place if there are no colors that visually connect their thoughts. Even if the infographic has many colors, one of the most important things to do is to assign colors to relevant information before you start designing.

Graphics There are two types of graphics in an infographic. These are theme graphics and reference graphics.

The theme graphic is the defining image of the design and is usually always present in the infographic, unless the infographic is more statistics-based. Choosing the right theme graphic will tell the reader at a glance what information is intended to be shared.

Reference graphics are not mandatory in design. They are usually icons used as visual pointers to avoid design clutter when a lot of content needs to be shown. It has the ability to make multiple references using the same example. Sometimes words are not needed if strong reference icons are used, and many designers resort to this to make their infographics as wordless as possible.

Research and Data: In all infographics, the content should be thoroughly researched and the data presented should be supported by proven facts. In doing so, there will inevitably be piles of data. The choice here is which data is most relevant to the content and how to present it.

Knowledge: There is an art to easily emphasizing the implications that are important to the content. Knowledge is powerful and the acquisition of that knowledge must be powerful. The knowledge that will turn into wisdom through experience is the very thing that leads to the creation of the infographic. The most basic premise is that real information should be used and references should be given somewhere in the visualization, regardless of the visualization product. If a photograph is used, the reference of the photograph should be given, and if a manipulation is to be made, the manipulation should be carried out by obtaining the necessary permissions. The information designer is obliged to respect copyrights.

4. Overview of Interactive Infographics

"Infographics" refers to data presented visually to inform the user. With interactivity, almost any static design can be made better. Interactive tools allow the user to hide and show information as needed and put the user in the "driver's seat" as they choose how it is displayed and explored.

The mere act of changing and rearranging data in an interactive graph has value, and the user is not just a passive observer but an active participant in the discovery process. The user's purpose in using knowledge graphs is to learn something. The ability to drill down, filter and reset is crucial. It may be desirable to zoom in, zoom out again, look at the details from time to time and compare one view of the data with another.

Good interactive infographics provide users with answers to the following questions:

- How is this data organized?
- What's that got to do with it?
- How can I explore this data?
- Can I rearrange this data to see it differently?
- Just show me what I need to know.
- What are the specific data values?

It should be noted that the term "infographic" is a very large umbrella that covers graphs, maps, tables, treemaps, timelines and diagrams of all kinds (Tidwell, 2010, pp. 161-162).

Historically, the easiest approach to representing complex data in an interactive interface on the web was often to use Adobe Flash. However, rethinking this was necessary, leading to a surge in the use of Apple products that did not support Flash (notably iPhones and iPads). This became even more important in November 2011 when Adobe stopped developing Flash5 for mobile browsers, as it was clear that HTML5 would power browser-based interaction and applications on mobile devices in the near future. Whether using fixed sets of information or dynamic data feeds, creating interactivity allows your audience to gain deeper knowledge and uncover new insights. The beauty is that when you are interactive, you are not limited to exploration or selecting narrative content. A new piece of information and a narrative that is meaningful to people can be started with another tab that draws out the most interesting information in the underlying data and just lets people find their own stories and explore the data for themselves (Lankow, J., Ritchie, J., & Crooks, R. , 2012, p. 87).

Interactive infographics offer many benefits for both users and journalists. When information can be stored and displayed by clicking, scrolling or hovering the mouse, a new level opens up, making it possible to see larger amounts of data in a small space. In addition, interactivity allows information to be consumed in a more informed way. The user has the chance to choose what they want to see and the information they want to experience.

Many computer systems offer interactive features to support human-computer interaction. However, interactive elements need to be easily accessed and used by users. We distinguish between a control dimension and a transport dimension that allows the system to react on user input. The control dimension is subdivided into selection (selection of available content, e.g. clicking on a hyperlink) and modification options (modification of the system range based on input, e.g. text input). In the context of infographics, there are various interaction

methods for manipulating a visual representation, such as scrolling, overview plus detail or focus plus context, filtering or data reordering (Zwinger, S., Langer, J., & Zeiller, M., 2017, p. 177). All these methods make interactive infographics an active participatory role for the user, while offering the possibility to transform the learning process into an experience.

4.1. Interactive Infographic Control Options

Journalists, designers and programmers implementing interactive infographics develop visual artifacts to convey a message to the user and also decide on the degree of interactivity. Of course, the interests of the users must always be included in this process. This is immediately followed by the question of the relationship of power and control between sender and receiver: "Who controls, the computer or the human(s) interacting with it?" In user-to-user interactions, communication can be bidirectional and the balance of power is more balanced. In the case of the user-to-system interaction model, control is more directed by the producer and the user has only a certain amount of intervention (Weber, W., & Wenzel, A., 2013, pp. 9-10).

Roughly three levels of interactivity can be distinguished for infographics on the web. There is a low level of interactivity when the user has the opportunity to navigate through the application and select content. These can be internal links, a start or continue button. Zoom or context-sensitive information that is activated when you move with the mouse pointer are also control options. Here the chart itself does not change. There is a medium level of interactivity when the user can manipulate the image with controls such as a time slider or menu items to see and compare changes. There is a high degree of interactivity when the user can explore the chart, for example, "interacting" with data and information by entering or filtering information or querying data. This includes the creation of charts where the user becomes a co-author, as in user-to-document interaction (Weber, W., & Wenzel, A., 2013, p. 10).

The control option alone does not make an infographic interactive. For the aforementioned exchange of meaning between producer and user to take place, the user must also perceive this control option. For example, a producer - editor, designer, programmer - can provide a certain degree of interactivity to the infographic, but the user cannot find interactivity because he/she has to select the interactivity elements (e.g. icons, precise click elements) or because of lack of cognitive experience he/she does not know what to do with the interaction possibilities offered. If the interaction elements are unknown to the user, the

design should solve this task. On the one hand, usability experts talk about conformity of expectation, which means that the system should be designed in line with the user's expectations and on the other hand according to the self-defining ability of the user interface. Interactivity is thus linked to several factors: the user's experience, knowledge and the user-friendly design of the interaction elements. This means that the interface plays a central role in the interactive communication process.

In addition to the choice of control offered to the user by the system or producers and the user's situational perception, another important characteristic of interaction can be defined - the interrelationship of messages. This "relationship" applies not only to user-to-user interaction, but also to user-to-system interaction. In other words, the infographic content should respond to the action in accordance with the user's query and communicate what the user expects with each click.

To summarize, to the user;

1. If it offers a control option
2. If the user can recognize and operate
3. An infographic is considered interactive if it responds appropriately to the user's query (Weber, W., & Wenzel, A., 2013, pp. 12-13).

Weber and Wenzel define interactive infographics as a coherent ensemble that presents several modes (at least two), e.g. image/video, spoken or written text, audio, layout, etc., offering the user at least one control option.

Control options provided;

- Start or stop button
- Forward or back button
- Menu item to select
- Timetable or time controller
- A filter is a data request or input box (Zwinger, S., Langer, J., & Zeiller, M., 2017, p. 177).

Another aspect is how we interact with the infographic. This is determined by the technology developed and the types of interactivity that are attributed to the design.

- *Touch Command:* On touch screens, users can interact with objects through actions such as single tap/swipe, drag and drop, multi-touch/swipe.

- *Gesture Command*: In a multimedia environment, gesture command is a form of interaction designed with gesture-based computer technology that enables devices to fulfill commands by detecting user movements through the camera.
- *Voice Command*: One of the methods of providing user control in interaction is voice command. By activating the multimedia features of the sounds perceived from the microphone on mobile devices, the user can control the application without using their hands (Kara, M., 2016:39-40). All these control options determine the interactivity level of infographics.

4.2. *Interactivity Levels of Interactive Infographics*

An interactive infographic can be defined by five characteristics that encompass narrative issues as well as interactivity: degree of interactivity, activity model, communicative purpose, "Wh-questions" and topic. The greatest impact on the usability of an interactive infographic comes from the degree of interactivity and the activity model.

The degree of interactivity of the interactive infographic consists of three levels;

- Low interactivity
- Moderate interaction
- High interactivity

A low level of interactivity allows users to navigate. By making selections with the mouse, using internal links, zooming, forward-backward or start buttons, the content in the infographic can be shown in detail, but the infographic remains unchanged. At a medium level of interactivity, users can make changes to the infographic, for example with a timeline slider or menu items, so that they can apply and compare information. A high level of interactivity allows users to explore the infographic and interact with the data and information, for example with inputs, filtering or data retrieval (Zwinger, S., Langer, J., & Zeiller, M., 2017, p. 177).

An infographic is only created when it is structured sequentially and the user will explore the infographic step by step by clicking (control option). When the user starts an animated infographic, a linear interaction will occur, as in a video. Here the image is formed by a sequence of sequential and moving pictures. Linear and sequential sequences in a space-time continuum are characteristics of narrative . Narrative, in particular, is one of the predominant features of

infographics. It also plays an important role in the context of journalism. This is expressed in keywords such as "multimedia storytelling", "visual storytelling", "data stories" or "narrative visualizations".

As for the relationship between linearity and narrativity in interactivity, interactivity is the feature that makes the biggest difference between old and new media. But interactivity does not facilitate storytelling because narrative presupposes linearity. It is unidirectional, just like time, logic and causality. The choice systems inherent in interactivity, on the other hand, involve a non-linear or multidirectional branching structure, like a network.

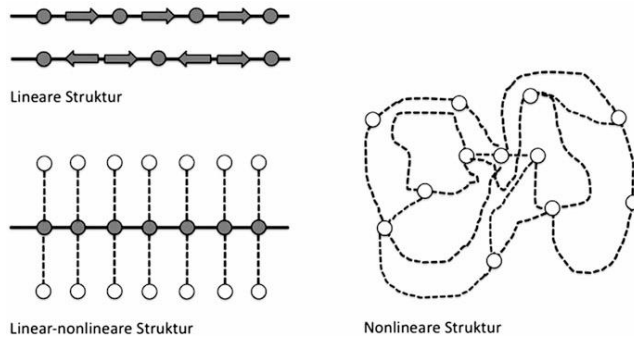


Fig. 10 Interactive infographic gesture types

(Weber, W., & Wenzel, A., 2013, p. 13).

In Figure 10, solid lines represent predefined click paths and dashed lines represent possible click paths. Circles represent units of content and arrows represent navigation direction.

Somewhere between these two poles, between "right-to-left progression" and "bottom-up entry", i.e. between linear and non-linear, there is a third variable: the linear-nonlinear model, which is a hybrid of multiple forms. This hybrid form can be defined as a hybridization of predefined navigation paths by the producer and a certain freedom of choice on the part of the user (Weber & Wenzel, 2013, pp. 13 - 14). Planning the presentation of interactive infographics by making choices through interaction models reveals the roadmap of how the infographic will be structured

4.3. Challenges in Interactive Infographics

Interactivity is used in information visualization for various purposes. To make data more engaging or entertaining and to show data in manageable chunks. By

using interaction techniques, visualization creators try to give users the ability to properly explore data and find appropriate answers to their questions. Providing ways for users to find answers on their own (exploratory visualization) often seems to be a better option than providing answers that the creator believes users have questions (explanatory visualization), not only because it is difficult to predict what the questions will be, but also because visualization is a tool of discovery and it is a mistake to limit its potential to provide insights (Figueiras, A., 2015).

Interactive infographics are more than simple bar or pie charts, but rather information graphics that elaborate on the broad topic that makes up the content. They require competent graphics skills to visualize their comprehensive content in an understandable way and programming skills due to their online interactive features. Today, interactive infographics can be produced with many online applications that do not require programming knowledge. However, it requires a team effort to produce subject-specific and customer-specific designs. Working with a team responsible for content, design and programming is the most practical way to overcome this challenge.

One of the problems for interactive infographics is screen sizes. For this reason, while creating the design framework, designs should be planned by considering different screen sizes. There is a strong development from large screens to small screens. More and more people are using their smartphones to get information. Today, smart watches and fitness bands are also widely used to record and process personal data. This leads to an increasing need for the use of interactive infographics in developed interfaces.

First and foremost is to align the layout vertically. The width is usually limited to 320 pixels. There is no limitation on the length principle, because the user can scan the information, scrolling the content from bottom to top. User-friendly designs are realized by considering user habits.

Fonts should be large enough so that they are easy to read even without zooming in. Another challenge is that unlike static infographics, interactive infographics require technical skills to make them accessible to the user. The biggest challenge for the user is to acquire these technical skills. In the design and programming process, such requirements should always be carefully considered (Gath, 2015, pp. 14-18). Another important issue is to consider user habits and screen sizes in the process of designing interactive infographics.

4.4. Usage Areas of Interactive Infographics

Interactive infographics are a type of information graphic that offers the opportunity to interact with a network due to its structure. By making choices on the screen, the user can intervene in the visual, the content of the data they will access and how much of the information they will access.

With the web interface, it is possible to view interactive infographics on digital screens of different sizes. These online infographics can be interacted with and easily shared via the web address on desktop and laptop computers, tablets and smartphones. It is used as an effective information tool to inform the public in social crisis situations such as epidemics and natural disasters, with its structure that makes information understandable and ease of sharing

Interactive infographics can be placed in different media depending on their content and purpose, and displaying an interactive infographic on a website is one way to do this. Through the interactive features in the interactive infographic, it can be better represented on the website and allow users to interact with it (Möcander, B., & Shen, N., p.9, 2023). Figures 11 and 12 show examples of successful interactive infographics that allow users to interact with the content at a high level. They are examples of infographics with different types of interaction such as scrolling, providing details when hovered over with a pointer, and filtering

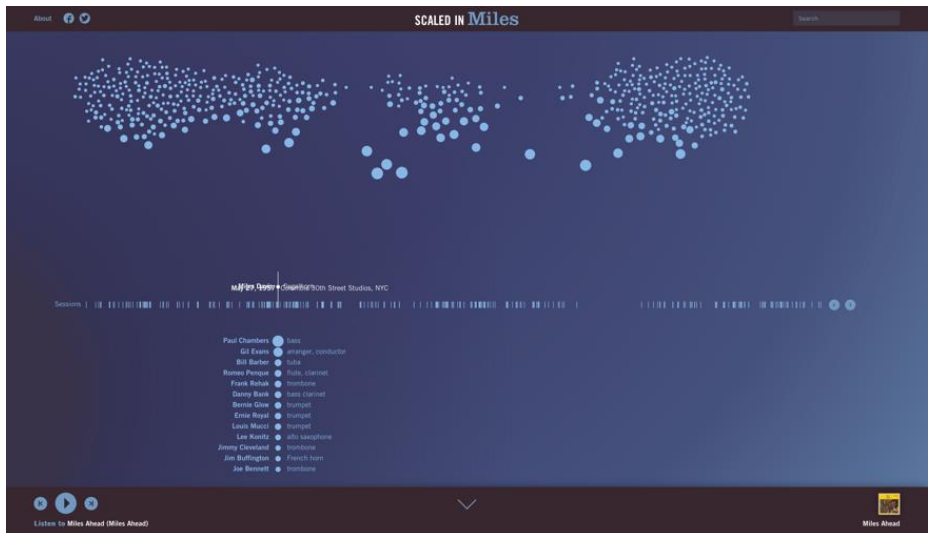


Fig. 11. Example of an interactive infographic on "Miles Davis' music career" (<https://fathom.info/miles-web/>Erişim date: 20.01.2018).

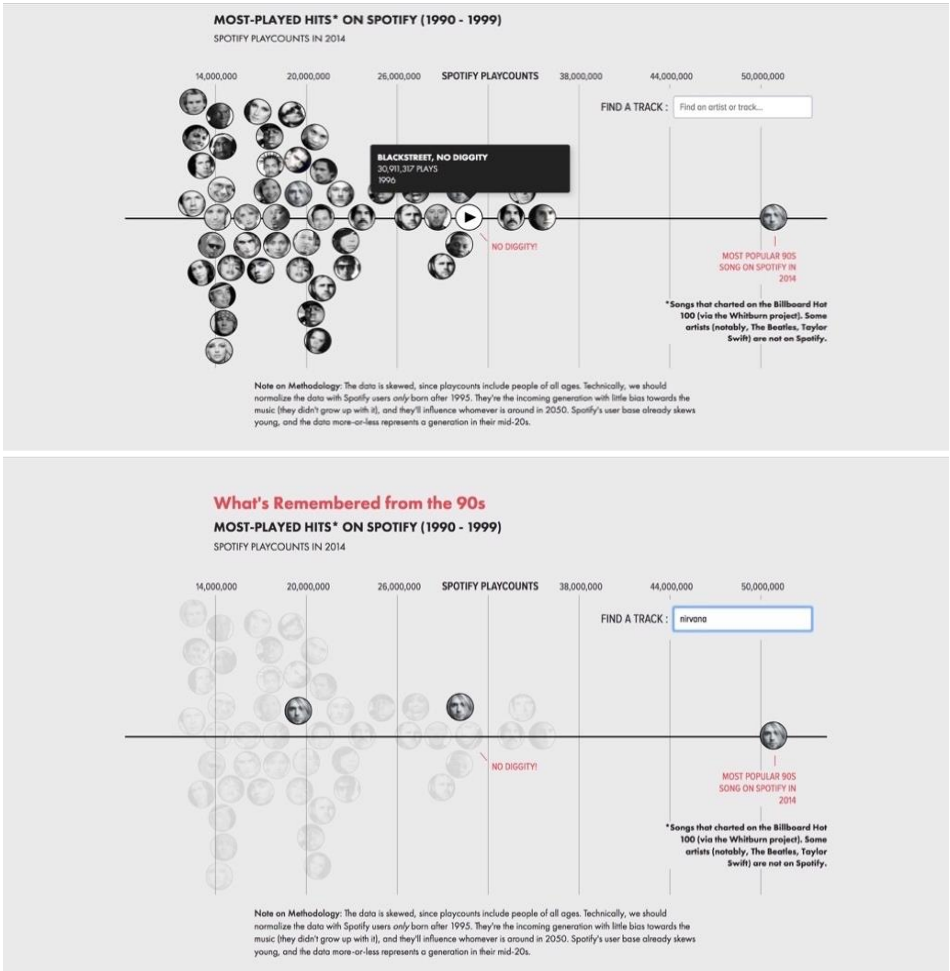


Fig. 12. Interactive infographic example on Timeless Songs of All Time / The Most Timeless Songs Of All Time

Date of Access: 15.01.2018, <http://bit.ly/2JugA9a>

The information screens used in mobile device applications where interactive infographics are widely used are mostly used to summarize, compare, process and record personal data in accordance with the purpose of use. Mobile applications such as fitness, health and finance keep data records and visually present this information on a dashboard screen. Here again, the user can manipulate the content to access the information they want and interact with it by making choices.

Depending on the operation of mobile devices, it mainly relies on touch screen gestures instead of mouse operation, so the use of gesture interaction in

small screen features should also be considered. The problem brought by the small screen is that the clickable range is narrowed, the recognition of the interaction area is poor, and the operation accuracy is not high.

On small screen-compatible devices, users who want to browse or find content quickly need to swipe several times in portrait orientation to reach the next category of information. Horizontal scrolling design leverages the display properties of the interface to make the information structure flatter. It eliminates the need for users to explore the full screen, reduces the hierarchy of information distribution, and makes information more visible (Wang, P., & Wang, J., 2021, p. 2014). Transferring and making data visible in interactive infographics also brings along the production of design solutions depending on screen diversity.



Fig. 13 Mobile device sports and finance app information screen image



Fig. 14 Mobile device shava status application information screen image

Another use is smart bands and watches that record data based on physical movement. Here, the act of touch is used to interact with visuals. Fitness trackers such as smart watches and fitness bands record various data. Most of these devices also visualize the collected data and present it to users instantly. In particular, smartwatch faces have become mini data dashboards that can provide an overview of data such as step counts, heart rates, locations, sleep information, and even external data such as current temperature or weather forecasts (Islam, A. et al., 2022).



Fig. 15 Smart watch information screen image
(<https://www.facer.io>, Date of Access: 20.10.2024).

The small screen of smartwatches is recognized as one of the most well-known barriers to knowledge representation. Visualization of health data, which is often quite dense continuous time series data, is made difficult by these small screen sizes. Therefore, new visual representations are needed to maximize the available screen space, not only to show key visual features, but also to include data from different data sources (Neshati, A., 2021, p.3). While visual tracking of instant data is performed on activity tracking wearable devices, more comprehensive data is simultaneously displayed on the application interface via smartphone with interactive infographic presentations.

5. Conclusion

Infographics is widely used through today's digital media as an effective way of communication to reduce the cognitive load of today's digital natives faced with a mass of data. On television, they appear in advertising, weather and news content, while on computers, tablets and phones they are used to inform, explain, promote, disseminate information and keep records. In smartphones, smartwatches and sports bands, it is used to create time series, event summaries and information boards by keeping personal data records. Today, interactive infographics are used as the content solution of the interfaces of many applications where personal data is kept on smartphones and watches.

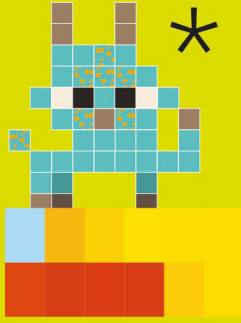
In this sense, structuring interactive infographics in a way to establish the right interaction is a primary issue in the design and software process. The presentation of user-friendly infographic content that takes into account the user experience and is compatible with screen sizes turns into an effective informative and narrative tool, as well as a cognitive repository that keeps data records. Here, it is an important area of expertise for the infographic designer to correctly determine which interaction elements to use to present the content. The solutions offered by designers who are familiar with screen interface design solutions and have insight into user experience are interacted with and the solutions targeted by infographics are achieved. In the future, interactive infographics will frequently appear as wearable technologies, augmented reality and holographic displays. It seems obvious that we will frequently encounter infographic content in digital media environments where holographic images come together with mixed validity.

Source

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Interactive Narratives and Design” emerged as a journey in the evolving world where comics, video games, and gamification intersect, bridging storytelling, culture, and technology. In March 2024, we evaluated various perspectives and brought together those that were deemed appropriate as part of our call to researchers and practitioners. This book explores how visual narratives shape our digital age, how they inspire cross-media creativity, how the rich heritage developed by humanity can be preserved through these media, and newly defined learning, play, and cultural memory. I share it with the hope that it will be useful for the future of interactive storytelling, with topics developed for designers, educators, and dreamers, to create roadmaps for researchers and practitioners.



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