



भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

Tracing the Journey of the World's Most Infamous Diamond: An Interactive Narrative on the Koh-i-Noor

Submitted by
Shreya Balakrishnan

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In partial fulfillment of the requirements for the degree of

***Master of Design
Department of Design***

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Declaration

I declare that this written submission represents my ideas in my own words, and where others' ideas or words have been included, I have adequately cited and referenced the original sources.

I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be a cause for disciplinary action by the Institute and can also evoke penal action from the sources that have thus not been properly cited, or from whom proper permission has not been taken when needed.



Shreya Balakrishnan

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Approval Sheet

This thesis titled '*Tracing the Journey of the World's Most Infamous Diamond: An Interactive Narrative on the Koh-i-Noor*' by *Shreya Balakrishnan* is approved for the degree of 'Master of Design' from the Indian Institute of Technology, Hyderabad.



Prof. Venkatesh Rajamanickam
Chairman



Dr. Prasad S Onkar
Examiner



Prof. Seema Krishnakumar
Project Supervisor

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01 Synopsis

- 1.1 Project Proposal
- 1.2 Project Brief
- 1.3 Scope of Work
- 1.4 Project Timeline

1.1 Project Proposal

Of all the gems in the world, the 90th largest diamond, the Koh-i-Noor is by far the most famous. Sifted from India's alluvial mines thousands of years ago, the diamond traveled the world before occupying a place of pride among the British Crown Jewels, tucked away in the Tower of London. During this transition, an amateur geologist compiled what is known to be the first written documentation on the history of the much-celebrated diamond, which served as the basis for all future stories.

However, according to authors Anita Anand and William Dalrymple, a lot is wide of the mark. Their non-fictional publication, *Koh-i-Noor: The Story of the World's Most Infamous Diamond*, written in two parts goes on to narrate a thoroughly researched, bloody, greed-filled, colonial narrative not only about the "cursed" diamond but also of the people and places associated with it.¹

This thesis project is an exploratory effort at retelling this work of non-fiction through a more visually engaging medium. Through an interactive digital narrative employing interactive multimedia, driven by text, aims to make the information-rich and fact-heavy book accessible to a wider audience, readers and non-readers alike.

The final realisation, deployed as a website with engaging interactive elements, is set to be shared online for more people to experience the story of the Koh-i-Noor

1.2 Project Brief

The project proposes to communicate the story of the Koh-i-Noor diamond through a web-based interactive narrative in a deservedly visual rich approach to captivate a broader audience based on the book *Koh-i-Noor: The Story of the World's Most Infamous Diamond*.

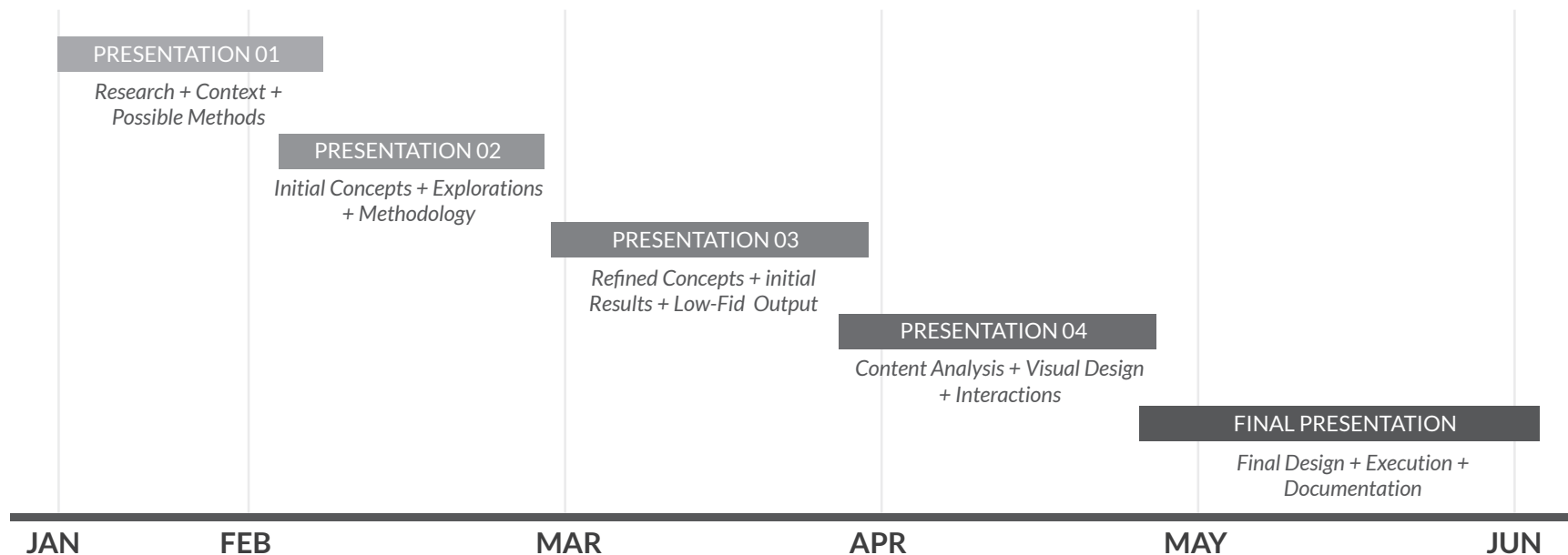
1.3 Scope of Work

The project's scope of work includes analysing the contents of the book alongside other interactive narratives based on non-fictional narratives to extract trends, categorising

and prepping the information to adapt to the proposed design medium keeping in mind the defined target audience. Furthermore, it involves collecting the visuals to support the narrative from rightful sources, conceptualisation of the final output, interface design with interactions and animation, and interactive prototype for desktop.

1.4 Project Timeline

The course of the thesis was chalked out over a span of 18 weeks, with review presentations scheduled at regular intervals to mark the progress of the project.



02 *Premise*

- 2.1 Introduction to Digital Storytelling
- 2.2 Evolution of Storytelling Media
- 2.3 Catalysts to the Inception of Digital Storytelling

2.1 Introduction to Digital Storytelling

Storytelling is believed to be an art as old as humans. In its simplest form, storytelling is considered to be the act of communicating important historical and cultural events to an audience.² However, the way we communicate these stories has seen a drastic change over the centuries - from primitive cave drawings, spoken and are written mediums to fairly recent films, games, and digital narratives; the initiative to make storytelling highly engaging is on the rise. Although the mediums have changed, the core concept of the use of narrative as a cognitive tool for situated understanding has remained the same.³

The newer forms of storytelling have allowed for not only broader dissemination of stories but also for unique experiences for both the teller and the listener. Digital storytelling is one such medium that combines the narrative with digital content such as photos, streaming videos, recorded sounds, and interactive media.⁴

The term 'Digital Storytelling' has a lot of ambiguity attached to it as is used in a lot of different contexts. As mentioned, it is a medium that heavily relies on visual media to tell the story but is also used for different approaches. One such approach is using digital media to communicate information by using interactive elements to engage the user in the consumption of the narrative. For this project, we will be referring to this approach when using the term 'Interactive Digital Narratives'.

Interactive Digital Narratives serve as an effective medium to communicate information to audiences that prefer visuals over written words. Moreover, the layer of interactivity plays a significant part in hooking the audience into the digital storytelling experience.

Interactive digital narratives are becoming increasingly popular in telling stories in the categories of personal narratives, recount dramatic historic events, journalism, or education.^{5,6,7} The award-winning New York Times interactive feature, *Snow Fall: The Avalance at Tunnel Creek* (2012) is one such paradigmatic example of the powerful use of interactive elements in the form of animated photographs, interview videos, and 3D animations to present a narrative. This multimedia story reinvented the outlook towards long-form digital articles, inspiring other media outlets to create similar products making this popular among the audience.

This project focuses on employing this medium in retelling historic anecdotes based on non-fiction and further leveraging the medium to add other unique elements to make the most of this powerful storytelling medium.

2.2 Evolution of Storytelling Media

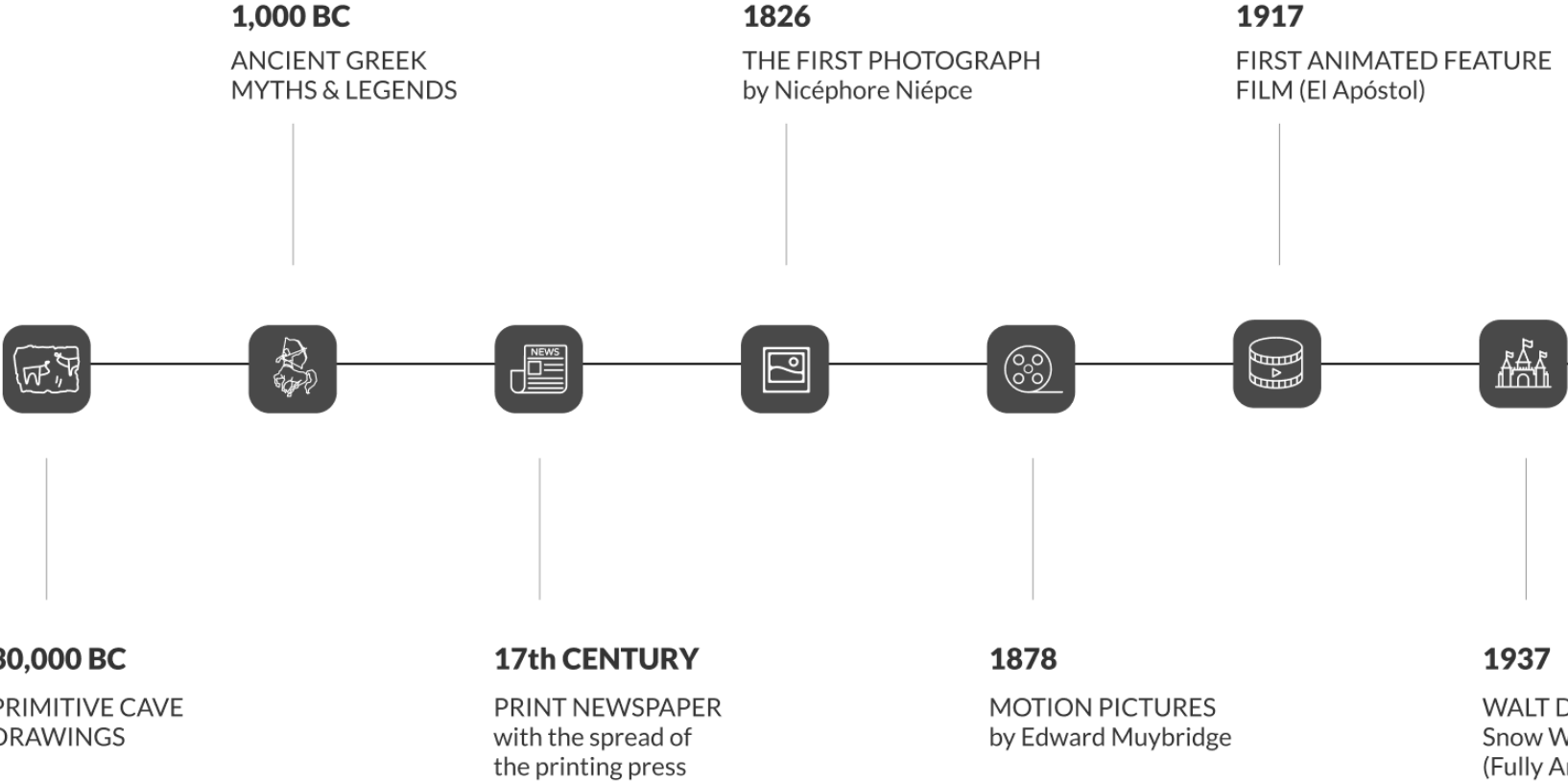
Telling stories is regarded as one of the most basic qualities of human communication and understanding. The history of storytelling began with primitive cave drawings and moved

to traditional oral storytelling, passed on from generation to generation through word of mouth. The advent of the written word came with the ability to write down stories and share them. Eventually, storytelling spread over the phone, radio, television, film, and other forms of media. With the rise in technological advancements, the reach of storytelling has seen rapid growth in audience consumption and absorption.²

The invention of moving images, in the 19th century, was one of the revolutionary landmarks in the history of storytelling, opening plenty of avenues for the art to flourish and attract a wider audience. Cinema as we know it today traces back to an experiment of series photography by Eadweard Muybridge, which gave birth to motion pictures. The subsequent years of motion pictures were marked by great leaps forward in technology, traversing from silent, black and white films to natural colour films with audio.

The digital revolution has blurred the lines between the various storytelling formats we consume. “Cinema can no longer be clearly distinguished from animation”, says Lev Manovich.⁸ For example, in the movie *Forrest Gump* (1994), where President Kennedy was made to speak new sentences by altering the shape of his lips painstakingly by hand, one frame at a time is a classic instance of the two mediums coming together. Films like Jon Favreau’s *The Jungle Book* (2016), and many other recent Disney movies, make it very debatable to label them under live-action or animation.

Evolution of Storytelling Media



1939

NETWORK TV
IS BORN



1989

WORLD WIDE WEB
by Sir Tim Berners-Lee



1999

WEB 2.0
Web of the People



2012

MULTIMEDIA NARRATIVE
SNOWFALL by New York Times



1972

INTERACTIVE
STORYTELLING:
First Commercial Video
game Console



1996

ONLINE NEWSPAPER
(NEW YORK TIMES)



21st CENTURY

Media Platforms like
FACEBOOK, YOUTUBE



2018

INTERACTIVE FILMS
Bandersnatch by
Netflix



Video games too brought in a variety of output, in the process of incorporating narratives, animation, and interaction, which has now led to the gaming industry overlapping with the animation and film industry. Furthermore, interactive movies are also considered a blend of video games and film, which has become possible with the invention of nonlinear playing devices in home entertainment.⁹ *Bandersnatch* (2018), an interactive film, by Netflix was one such groundbreaking phenomenon where the narrative was not just based on video games but was a video game in itself. *Bandersnatch* allowed for its viewers to explore and “play through” the multiple endings to its narrative if they wish, where none of the choices appear more plausible than the other.¹⁰

With all these formats proliferating rapidly, it only becomes much more evident that the origin of interactive digital narratives stands on the shoulders of many fields, including games, cinema, storytelling, programming, and animation. Interactive narratives draw a lot of characteristics from its predecessors; the visual richness of animated movies, the dynamic nature of moving images, and interactivity from Human-Computer Interaction used widely in video games, has opened the doors for digital narratives to communicate the stories to a much broader audience.

Interactive Digital Narratives mean many things to many people. In the film and entertainment industry, there are ‘interactive films’ like *Bandersnatch*, in the journalism industry

there is ‘scrollytelling’ which is another form of interactive storytelling and, in the educational field, there is digital storytelling that is said to benefit pedagogy immensely.⁷ The innumerable applications of this format have led to it being adopted across many domains which can be credited for its rising huge popularity.

This rising trend was further fuelled by the parallel growth of the various technological advancements along the way, which provided a platform where users could consume and contribute to narratives through engaging experiences that they can interact with and participate in.

2.3 Catalysts to the Inception of Digital Storytelling

Apart from the earlier formats of storytelling that greatly influenced the evolution of Interactive Digital Narratives, it would be unfair to look at the technological advancements that made them a possible reality. Storytelling with digital tools dates back to the early days of personal computers and the first networks.

Role of Web 2.0

Web-based narratives grew in number through the 1990s and into the twenty-first century, with the field of electronic literature developing rapidly.¹¹ Levin and Alexander define ‘Web 2.0 Storytelling’ as the telling of stories using Web

2.0 tools, technologies, and strategies on the World Wide Web. For the purpose of this thesis, we will discover the key characteristics of Web 2.0 that gave rise to the interactive narratives as we know today.

Tim Berners-Lee associated Web 2.0 as the web of the people; that is usually linked with user-centric web-based applications that allow for information sharing, collaboration, easy interaction, and interoperability.^{12,13,14} One of the primary characteristics of Web 2.0, compared to its former generation, is user interactivity (social web) that allows users to contribute and interact with the content, instead of simply reading what's already there. Another influential factor of Web 2.0 is findability that facilitates social bookmarking and content tagging which add more tools to help share or recall what has been found.¹⁵

In a wider sense, the introduction of user-friendly Web 2.0 applications encouraged increased user engagement and involvement, which allowed digital narratives to grow exponentially with every advancement in the webspace. With the emergence of collaborative and communicative applications, Web 2.0 storytelling has reached more listeners and inspired more creators while also providing a connection between the two.²

Role of Hypertexts

Web-based storytelling established a significant, albeit

unrecognised, record after hypertext became widely popular and known with the rapidly fast expansion of the web. This occurred both before and alongside the rise of the above-mentioned Web 2.0 revolution.

Hypertexts form a very significant part of storytelling in Interactive Narratives, making it one of the integral aspects of the narrative quality and structure. Yellowlees Douglas went as far as explaining 'Interactive Narratives' to people as "Narratives written in hypertext".¹⁶ Furthermore, Ted Nelson mentions that the best way to define hypertexts in the context of its fictional counterpart, interactive narratives, is "non-sequential writing with reader-controlled links".¹⁶

Early work on hypertext looked at novel ways to create and experience narratives, which were often non-linear and increasingly media-rich. Interactive Digital Narratives facilitate multiple navigation paths or ending to a story which can be attributed to the feature of hypertexts. The presence and capability of hypertexts in interactive narratives is what sets it apart from its counterparts and predecessor - key to narrative flexibility.¹⁶ This, on one hand, led web users to experience stories using web pages as hypertext lexia, chunks of content connected by hyperlinks; while on another level, they experienced plenty of interactive digital narratives created in non-web venues but published in HTML, such as embedded audio, video, and animation through the Flash plug-in.¹⁵

03 *Understand*

3.1 Narrative Structures

3.2 Rise of Non-Fiction Interactive Narratives

3.3 Case Studies

3.1 Narrative Structures

The most important elements such as a central character, a conflict, a meaningful motive, a viral approach, and – most important – a narrative, form the building blocks in storytelling.¹⁷ The narrative is the order of events, typically in correspondence to time, forming the structural framework which underlies the manner in which it is presented to the reader, viewer, or listener. This structural framework, called narrative structure, is popularly categorised into these four types: Linear, Non-Linear, Quest, and View-Point.¹⁸

Linear Narrative

The most traditional and common form of narrative, linear narratives presents the events in a chronological order revealing the story in the order in which they took place. This can be employed in any narration perspective, first-person narration, second-person narration, or third-person narration. Stories adopting a linear narrative tend to have a stronghold on the reader, immersing them in the experiences of the protagonist, as the character's life unfolds in a linear fashion. Examples of narrative linearity can be found in Jane Austen's *Pride and Prejudice* and *Toy Story*, which offer different narrative perspectives but unfold the plot in a linear, chronological manner.

Non-linear Narrative

Some storytellers portray the narrative by deviating from the actual order of event happenings to create a disrupted

narrative. This is often done using the concept of flashbacks and other literary devices to shift the chronology of events. The non-linearity in these narratives is used to hook audiences, build expectations, and create suspense in storytelling making the experience more interesting for the consumers. One very famous example of a non-linear narrative is the 1994 film *Pulp Fiction*. The film appears to be a collection of three short stories, which, upon closer inspection, are actually three sections of one story with the chronology broken up, constructed without resorting to the classic 'flashback' technique. In the publication space, the chapters of Chitra Banerjee Divakaruni's novel *Before We Visit the Goddess* deviates from the linear sequence of events, this allows the characters to have a convincing life timeline while still employing the hacks that make a story enjoyable.

Quest Narrative

A storyline where the protagonist is found to be constantly working towards a target is called a quest narrative. The journey of the prime mover seeking their target with their all-consuming passion and the impossible challenges they face along the way adds more character to the story. A clear example of a quest narrative is J.R.R. Tolkien's *The Hobbit*. In the novel, Bilbo Baggins sets out with a band of dwarves to reclaim lost gold from a dragon. Their quest takes them through many dangerous territories, and they are nearly ruined by a number of crises en voyage. Some prominent movies that strongly illustrate this narrative structure are

the *Pirates of the Caribbean* series (2003-17), animated films like *Ratatouille* (2007) and *Tangled* (2010), and classics like *Wizards of Oz* (1939).

Viewpoint Narrative

Viewpoint narratives are designed to tell the story through the eyes of the one, expressing their subjective opinions and personal experiences. In this literary structure, the emotions, moods, and feelings of the story are filtered through the narrator's point of view. This narrative style is often conveyed in first-person narration or third-person omniscient narration, in which the omniscient narrator switches between the POVs and private thoughts of multiple central characters. This type of narrative can be used to bring an unreliable subjectively presented information or can be used to bring an interesting angle to old story from another character's point of view. The novel *Palace of Illusion*, by Chitra Banerjee Divakaruni, retells the story of the Mahabharata through the eyes of Draupadi, namely, that of a woman living in a patriarchal world.

The narrative structure of storytelling can be linear, nonlinear, quest, viewpoint, or the combination linear-nonlinear (course of action).¹⁷ The linear-nonlinear type is a hybrid of the author-driven approach and reader-driven approach that enables the author to communicate his message using a predefined path, but still allowing the user a certain amount of options to select on his own.¹⁷

3.2 Rise of Non-Fiction Interactive Narratives

Web-based storytelling in the non-fictional genre is one that became widely popular in the presence of online journalism. One of the approaches to digital long-form, scroll based stories which is popularly known as scrollytelling, allows journalists to use different forms of expression by taking advantage of the multimedia character of these relatively novel electronic publications.¹⁹

The New York Times is considered to be the pioneer in using multimedia for communicating information in the long-form for many years. One of the first examples of the style to gain widespread attention was *Snow Fall: The Avalanche at Tunnel Creek*, published by The New York Times in 2012; this set the standard for this new type of visual storytelling in online media. When the reader engagement for these formats soared high, it was no doubt that other leading publications like *Bussed Out* (The Guardian) and *Scaling Everest* (The Washington Post) were quick to follow.

Scrollytelling, the scroll-based interactive narratives, enabled a dynamic interplay of text, images, videos, audio and other multimedia, which gave the narrative a fun pace and added elements of surprise as the various components came into being.¹⁷ All these visually engaging aspects made scrollytelling a compelling format to disseminate non-fictional narratives to the consumers, who found it too hard to consume the same as just plain text.²⁰

Scrollytelling formats typically start with a full-screen photograph or video. By scrolling – usually vertically, seldom horizontally – the user moves forward to the next element. Scrollytelling articles are often text-centric, i.e., the text is the leading component, the backbone of the article. In multimedia storytelling, the multimedia elements typically appear on the side of the text or full-width between the text blocks. Image-centric articles have a similar structure, but the sequence of elements is determined by images/photos and videos. Other types use full-screen images in the background and text, audio-video, and infographics are placed on top.¹⁹

Since scrollytelling pieces typically include a lot of images and multimedia elements, they are used to tell complex stories and are often used in telling non-fictional narratives. They are considered a very well qualified method to add information in an efficient way.¹⁷

3.3 Case Studies

Specific to non-fictional narratives, there are a few of the interactive narratives that this section sets to analyse. The following analysis is loosely based on the framework ‘interactive decoupage’ that authors use to study interactive audiovisual work.⁶

Snow Fall: The Avalanche at Tunnel Creek was The New York Times’s first bold leap into an experience-based feature that

unravels the experience of sixteen nation's top freeskiers and snowboarders that were trapped at Tunnel Creek avalanche in 2012.²¹

The multimedia feature, a six-part series, records and inspects the causes and deadly impact of a snow avalanche in Washington's Cascade Mountains that was triggered when fifteen of the nation's top freeskiers and free snowboarders were making a run together.

Each chapter of the narrative is structured around a long text that drives the narrative. Throughout the text, a series of animated photographs, interview videos, and 3D animations are presented. The website sparingly uses hyperlinks within the content body that directs the user to the image gallery.

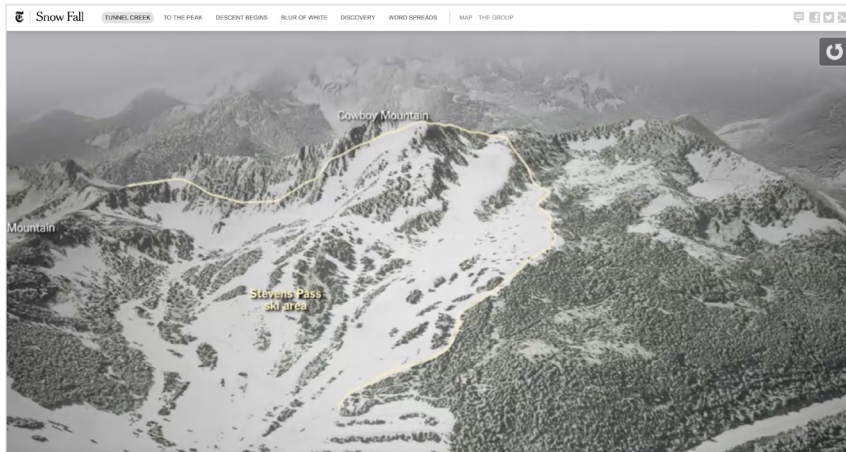


Figure 01: Screenshot of 'Snow Fall: The Avalanche at Tunnel Creek' by The New York Times

The visual style of the website is kept to its minimal, with an overall washed-out effect that corresponds to the snow fall event. A basic serif font in a contrasting black against the white background is used. The long text is presented with supporting images and videos, both colour and black-and-white. These multimedia are mostly restricted to two-third of the layout grid, however, in some cases, it spans the width of the whole page. The website does not use any extra graphic elements, sparing a few basic icons to reload, play and pause the videos.

The navigation on the website is based on the effect of parallax scrolling allowing the elements on the website to harmoniously interact with one another. In other parts, the interactivity is restricted to video control such as play, pause, reload and mouse click to access the different sections. The experience is designed to adapt to different devices and browsers, with each devices' experience crafted individually.

Snow Fall reinvented the template for digital long-form articles and inspired other media outlets to create similar products. Margaret Sullivan states that, out of the almost three million visitors to Snow Fall in its first week of existence, a third had never before accessed the NYT website, such was its popularity.²² Moreover, the feature triggered a remarkable movement, so much so that "Snow Fall" is now a verb used by editors who want to create similar high-profile projects.²³

Where is Poland? is a project organised in cooperation with the Adam Mickiewicz Institute as a part of POLSKA 100, an international cultural programme celebrating the centenary of Poland regaining independence in 1918.²⁴

The project, published in 2019, documents the story of Poland under the partition, as seen through the eyes of a foreigner. The project spread across 9 chapters preceded by an introduction to provide context, covers a vast range of topics crisp and concise manner.

The website is made highly engaging with visually rich elements and interactions along with snippets of text that carry the user through the story. It also adopts modules that require user inputs and interactions to uncover more details.

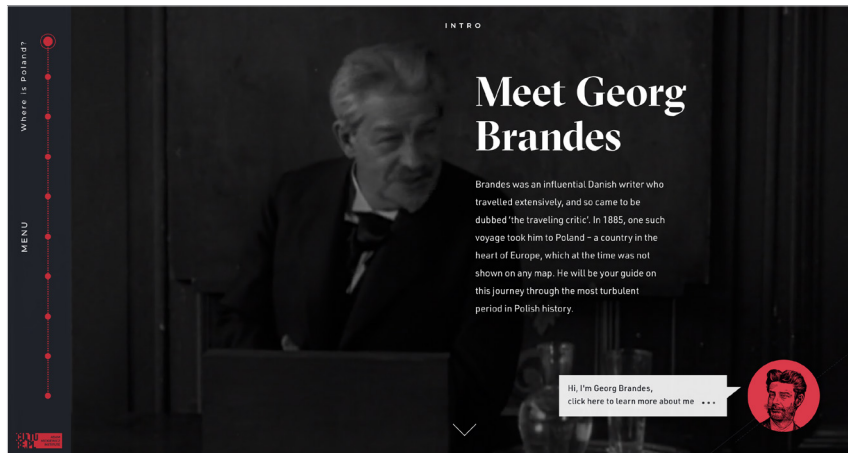


Figure 02: Screenshot of 'WhereisPoland?'

The website also aptly uses hyperlinks within the website to provide more information. This allows for the user to consume secondary information without breaking the flow of the primary narrative.

The visual appeal and user interface are laid out very neatly, with not too many distracting elements on each slide. The colours are kept to a minimum with a colour palette inspired by the Poland flag. The project adopts a slab serif title font with a sans serif font for running text paragraphs. The media and images used on the website have a sepia filter treatment to them, fitting in right with the theme of the story. The website also uses audio output very wisely thereby enhancing the experience of the narration.

The website follows a basic scrolling interaction, for the most part. The user can also access the chapters at random using the timeline at the left. It also incorporates a few 'hold-and-drag' and 'swipe' interactions across the website.

The project is a responsive website that adapts to the device the user views it on making it accessible. The project is presented in both English and Russian languages, leaving it to the users' preference.

Bussed Out: How America Moves its Homeless, an interactive narrative from 2017, is the result of an 18-month investigation by The Guardian that analyses America's

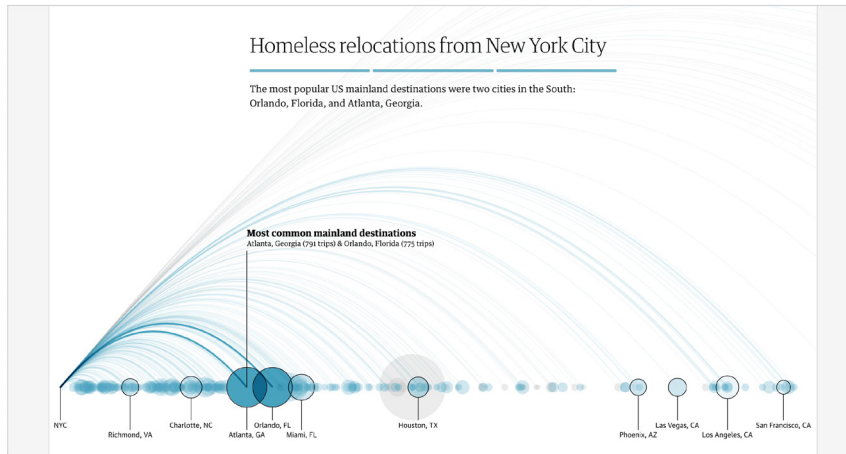


Figure 03: Screenshot of 'Bussed Out: How America Moves its Homeless' by The Guardian

homeless relocation programs and their effect on cities and the travellers.²⁵ This scrollytelling project presents the first detailed analysis of America's homeless relocation program by compiling a database of around 34,240 journeys and interacting with the travellers. The project answers questions such as where the people are relocated, what happens after they reach their destination, and the impact of these relocation programmes through long-form journalism.

The interactive website follows a linear narrative structure with chunks of textual information supported by visual media such as images, videos, and data visualisations. The website appeals to strike the right balance between visuals and text, at least visually. The data is presented using a blend of static

and dynamic explanatory visualisations. The project does not use hyperlinks, except for one external link to the report, on the entire page.

Bussed Out has a clean user interface, with the text laid out at the centre column of the page; and the visualisations and multimedia add to the colour of the web page. The interactive opts for a serif font throughout, black on white. The data visualisations use subtle tints of blue, red, and yellow in that exact order of dominance.

The website is primarily driven by just one interaction - vertical scrolling. The dynamic data visualisations too are triggered by the scroll where each scroll reveals more information. A few data visualisations on the article use animations too. Apart from these, it has some mouse click interactions for playing and pausing the videos embedded in the article.

The data driven narrative resizes itself well to all digital devices making it a responsive piece of work, presented in just the English language.

The Sochi Project, a largely crowd-funded project, is the result of a collaboration between photographer Rob Hornstra, and writer/ filmmaker Arnold van Bruggen to tell the story of Sochi, Russia's Summer Capital, site of the 2014 Winter Olympic Games.²⁶

The Sochi Project is a journalistic long-form speaking volume of the summer capital Sochi spread across 9 chapters. The content of the website covers the story of the summer capital, where no snow falls in winter, being chosen as the venue for the Winter Olympics 2014. The authors narrate the story of Sochi, along with snippets from their first-person experiences of them travelling through the mentioned territories. It covers aspects from the history of the region, its relationship with neighbouring countries, and the latest developments in the government that affected the Winter Olympics planned at Sochi. The narrative includes excerpts from conversations the authors and the people of Sochi.

The product is a text-heavy website along with a lot of photographs, and also a few videos, GIFs, and documents.

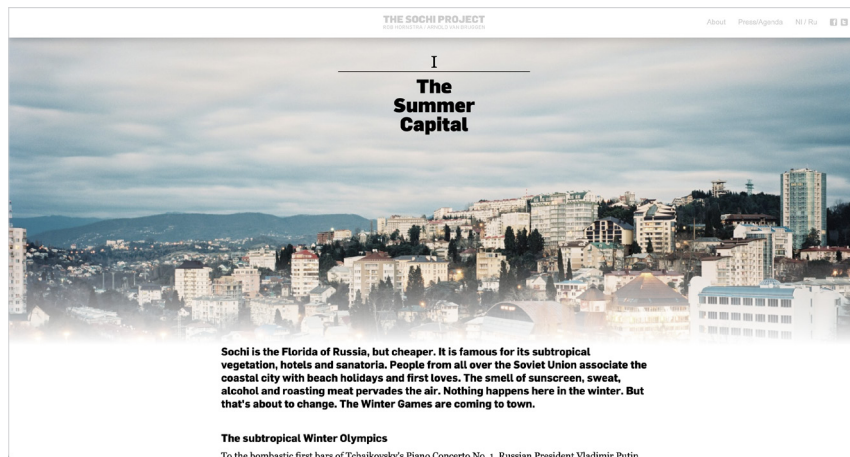


Figure 04: Screenshot of 'The Sochi Project'

However, to compensate for the information-heavy pages, the navigation bar provides a gist of the chapters. The website theme is pretty basic with the use of sans serif fonts and black text on white background. It brings in a pop of colour for the pull quotes mentioned on the website.

The website is not a responsive one, making it only viewable on the desktop. The project also has the option for readers to consume the content in the Russian language, making it accessible to more people.

The above examples exhibit the common features included in interactive digital narratives based on non-fictional content. It has been made evident that scrolling is probably the most intuitive interaction, while hyperlinks add more character to the narrative. It is noticeable that the product crafted by varying levels of textual, multimedia, data visualisations, and interactivity used helps achieve different experiences based on the content. This flexibility has propelled the digital narrative trend to be widely adopted in other domains under other names, such as web documentary, interactive narrative, and multimedia story. Ever since Snow Fall various other industries and publications have released their versions of the format. The Pudding is one such digital publication that is dedicated to only publishing 'visual essays' on a variety of topics ranging from social issues to entertainment.²⁷

<i>Website Name</i>	<i>Publisher, Year</i>	<i>Synopsis</i>	<i>Media Elements</i>	<i>Dominant Element</i>	<i>Structure</i>	<i>Interactions</i>
Snow Fall: The Avalanche at Tunnel Creek	The New York Times; 2012	Unravels the experience of 16 skiers that were trapped at Tunnel Creek avalanche in 2012	Text, Images, Videos	Text	Linear	Vertical Scrolling, Mouse Clicks
Where is Poland?	Adam Mickiewicz Institute; 2019	Documents the story of Poland under the partition, as seen through the eyes of a foreigner	Text, Photographs, Videos	Visuals	Linear/ Non-Linear	Scrolling, Hold & drag, Mouse Click, Swipe
Bussed Out: How America Moves its Homesless	The Guardian; 2017	the first detailed analysis of America's homeless relocation program and their effect on cities and the travellers.	Text, Images, Videos, Data visualisations	Text	Linear	Vertical Scrolling, Mouse Clicks
The Sochi Project	Crowd Funded; 2013	The story of the summer capital, Russia being chosen as the venue for Winter Olympics 2014	Text, Photographs, Videos, GIFs, PDF Documents	Text	Linear	Vertical Scrolling, Mouse Clicks

04 Define

- 4.1 About the Book
- 4.2 Target Audience
- 4.3 Detailed Project Brief

4.1 About the Book

Koh-i-Noor: The Story of the World's Most Infamous Diamond (2017) is a non-fiction publication based on the Koh-i-Noor diamond written by William Dalrymple and Anita Anand. The book is considered to be the first comprehensive and authoritative history of the Koh-i Noor diamond.

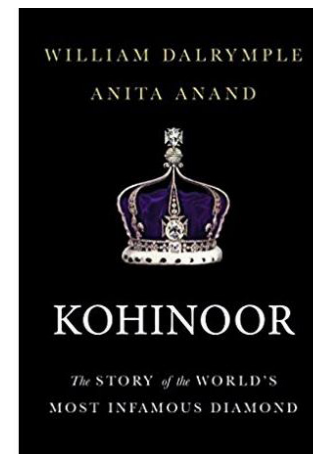


Figure 05: Cover of the Book

Structure of the Book

The book is set in two parts: *The Jewel in the Throne* and *The Jewel in the Crown*.

The first 5 chapters in the first part of the book, by William Dalrymple, deals with the early history of the diamond, tracing its origin and path from ancient texts and sighting during the Mughal times.

This followed by its journey from the Mughals to the moment of conquer by Nader Shah, continuing its path through Iran to Afghanistan to Punjab, and finally in the hands of the Sikh Raja Ranjit Singh.

While Anita Anand, in the second part of the book comprising 8 chapters, compiles the events that transpired after the diamond was taken from a ten-year-old boy who had lost his kingdom to colonial power and sent into royal care; and how it was pursued by several rulers as the dynasty progressed.

The book not only uncovers a tale of greed, murder, blindings, torture, and colonialism but also mentions the changing tastes and fashions in ornamentations and the importance of precious stones. It also reveals the irony behind the “curse” of the much sought-after and celebrated diamond, along with some quirky and bizarre anecdotes that add character to this inanimate and natural object.

4.2 Target Audience

The book is definitely an interesting read about the celebrated diamond. Although, it can get a tad bit overwhelming with all the historical information condensed into this book, which in some cases may feel a little too heavy for the reader. A look into the reviews of the book on various online platforms revealed the following:

Some felt “Maybe it picked up but it was a bit dense and dry for recreational reading. It’s a shame because the history of jewels like this is so fascinating but I ended up abandoning this book without finishing it.”²⁸

Some went as far as to say “I finally gave up. This book is so dense it became impossible for me to continue. It goes on and on about shahs and Mughals until I could only scan page after page. Very rarely did I find a paragraph or two to actually read. I thought the story of the Koh-i-Noor would be interesting. Instead of finishing the book, I got some readable

information off the internet. A much better solution than continuing with this book.”²⁹

Looking at these findings, for the purpose of the interactive digital narrative, it was chosen to target leisure readers and non-readers alike. The project assumes that the target audience has the basic skill to navigate through the web.

4.3 Detailed Project Brief

Creating an interactive website that focuses on retelling the narrative of the non-fiction book *Koh-i-Noor: The Story of the World’s Most Infamous Diamond* to a wider audience that engages not only readers but also non-readers by employing all the tools and techniques that digital storytelling medium has to offer, to create an immersive experience.

The aim is to build an engaging experience for the re-defined target audience by not just translating the story onto a web platform but also incorporate more visually gripping and captivating elements and interactions that allow the readers to also participate and interact with the story while they consume it.

05 *Ideate*

- 5.1 Content Analysis
- 5.2 Design Approach
- 5.3 Concepts

5.1 Content Analysis

After defining the objective and the target audience for the project, it was needed to alter the content of the publication to suit the format that it was being adapted to. Since most interactive narratives are anchored by the text, it was decided to trim the content to its essential information focusing only on the history of the diamond, excluding the details anecdotes that the book narrates with respect to the people and places involved in the journey of the Koh-i-Noor.

The first step in this direction involved analysing the linear narrative of the 289-page long book and summarising it, to retain only the key events and stories. This exercise required multiple rounds of reviewing the text to highlighting only the relevant information. That was further followed by a storyboarding practice that encapsulated the summarised version into 8 keyframes per chapter. This helped in weeding out the ancillary details that took focus away from the diamond in any capacity.

Alongside these tasks, numerical data associated with the diamond at overview was recorded to extract any patterns or hidden information the story might have to offer. All these activities revealed interesting insights about how the Koh-i-Noor had never been gifted to its owners, always acquired by brute force, and how it made public appearances only twice in the history of its existence before it was exhibited in the Tower of London after the Queen Mother's funeral.

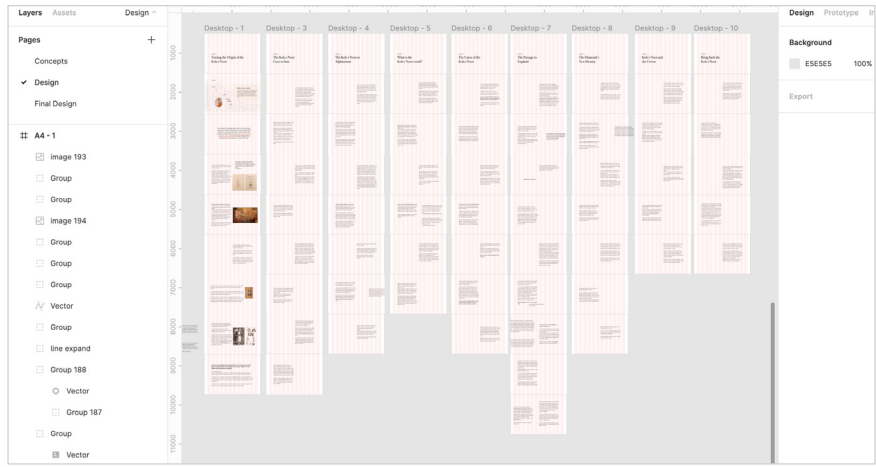
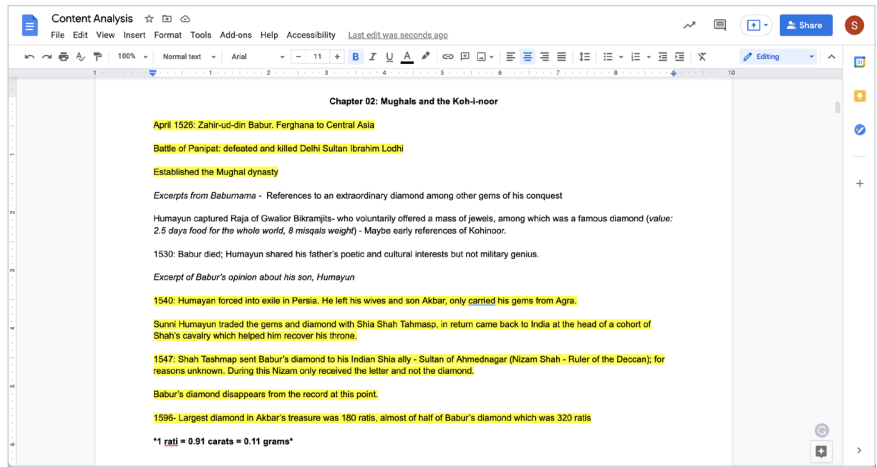


Figure 06: Content Analysis Stages: Summarise book to highlight points (bottom left); Storyboarding exercise (top); Regrouping content and chapters (bottom right)

Additionally, other sources of information were also referenced, mentioned in the publication, and otherwise, that might add value to the narrative. One such detail was the transfer of the diamond from Shah Shuja to Maharaja Ranjit Singh, which holds a lot of debatable perspectives. Some texts say the diamond purchased by Raja Ranjit Singh, while some say it was snatched, stolen, or gifted by Shah Shuja.

In all, after multiple iterations, these tasks yielded a formatted document that included the content regrouped to form 9 chapters. Another important thing to note was to make each chapter stand independent of one another, which was further made of small chunks of self-standing anecdotes. This was done with the intention to cater to a use case where one may not have enough time to surf through all 9 chapters, in which case they would have something to take away, even if they left after a brief interaction with the website.

5.2 Design Approach

Based on the insights gathered from the previous stages of research, analysing case studies, and the content analysis of the book, the ideas for the project were generated.

From the earlier case studies, it was found that for a non-journalistic piece of work, a more visual approach would work best with supporting text material to help take the narrative forward. Also with the nature of the content that

was being dealt with, chapter-wise format of the content was deemed necessary, to maintain the right balance between uncovering all key events and at the same time not making it too heavy for the readers. It was also decided at this point that the use of hypertexts would provide an added layer of interactivity for the interested readers who could access additional information and details about the story.

Furthermore, defining the infrastructure of the digital medium was necessary to identify the advantages and limitations that come in association with it. For this project, a desktop-centric design approach was finalised, which could further be extrapolated to tablet and mobile experiences.

With all these considerations, conceptualisation for the interactive narrative began keeping in mind the target audience and project brief. Various approaches were reviewed during this stage:

01 Location-based narrative or Ruler-based narrative

The approach to drive the story through a geographical anchor point as the narrative traced the journey of the Koh-i-Noor seemed to be the first idea that came to mind considering how the first half of the book talks about the diamond moving from Delhi to Iran to Afghanistan to Lahore.

02 Types of narrative structures to retell the story

This direction involved breaking down the story to be retold

in an altogether different sequence, taking into account various narrative structures that were studied in Section 3.1.

03 Data-driven narration approach that highlighting facts

Considering the time-driven historic timeline of the narrative, telling the story through numbers and dates as the focal point also seemed to a possible direction to consider. Apart from just the dates, analysing the narrative uncovered data however it wasn't vital enough to drive the narrative.

All these directions were explored further by sketching ideas for each to find the best-suited approach to retell the story of the Kohinoor with value while doing justice to the medium of storytelling and target audience.

5.3 Concepts

All ideas generated were reviewed against the parameters gathered in the previous section. These were also thought of in line with what would allow for a visually enriching experience apart from just tweaking the narrative structure to add interest. Of all the concepts produced in this stage, the ones that seemed to add value are listed below.

Direction 01: Storytelling through an image gallery

A classic linear narration that categorises the content into chapters, through visual media such as paintings, newspaper clippings, and pictures. To add more to the basic concept it

was thought that each chapter would have a virtual gallery of all the visual media associated with the key events of that chapter. Clicking on these images could reveal details and narrate the story associated with that key event of the chapter, allowing the viewer to uncover more details of the story as they move forward. To enhance the experience further, intuitive navigation, heavy use of micro-interactions, and animations were considered.

However, this approach failed due to a lack of rightful visual material corresponding to the key events of the narrative.

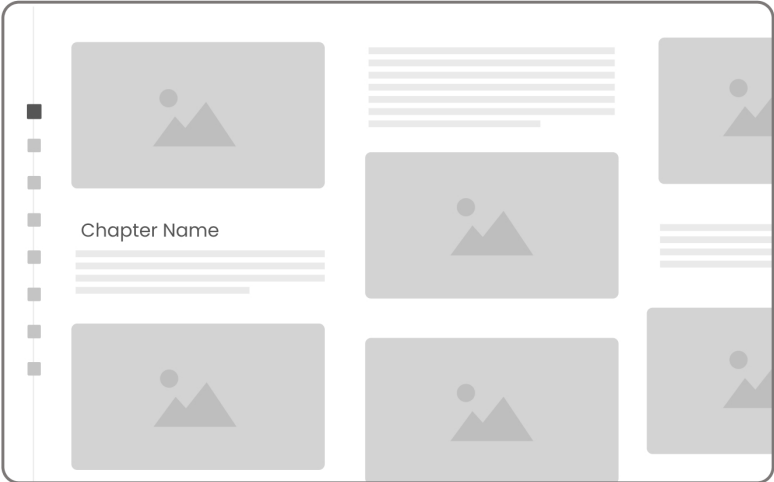


Figure 07: Concept 'Storytelling through Image Gallery'

Direction 02: Character Viewpoint Narration

This concept was based on the point in history about how

Theo Metcalfe's version of the Kohinoor history is considered to be one of the first pieces of documentation of the Kohinoor. It was an anecdotal account that was gathered a



Figure 08: Concept 'View Point Narrative (through Theo Metcalfe)'

little from the Delhi bazaar's tittle-tattle.¹ Setting this as the premise of the concept, the idea was to embody a character viewpoint narration with the linear flow of events for the interactive narrative where the story could be told through Theo's perspective as he narrates his documentation process.

However, this approach had two issues. Firstly, one is Theo's narrative perspective would stop at the point in history where he writes the documentation and the events that followed would not be told. Secondly, the authors of the book mention Theo's anecdotes to be off the mark in many places which would again compromise on the authenticity of the narrative. Hence, this idea was dismissed.

Direction 03: Non-Linear Flashback Narration

Adopting the approach of non-linear narration, it was decided to explore how key events in the storyline can be used as the starting point to begin the story and further build the narrative flow around that.

For instance, the Kohinoor is said to have made one of its public appearances at the Great Exhibition of 1851, London. This incident is considered to have made the Kohinoor a popular object, giving it the value and status that it holds today. The concept of creating an experience of the viewer entering the TGE can be reimaged through the appeal of a virtual museum to retell the story of the Kohinoor using an audio-visual guide was thought of as a direction.

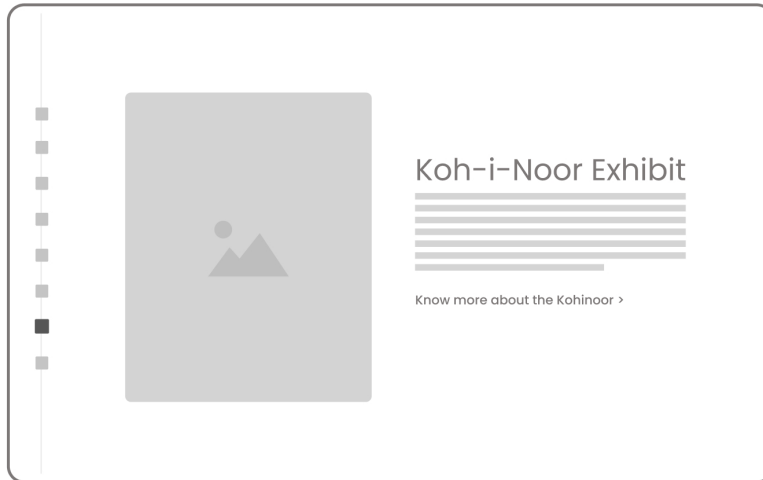
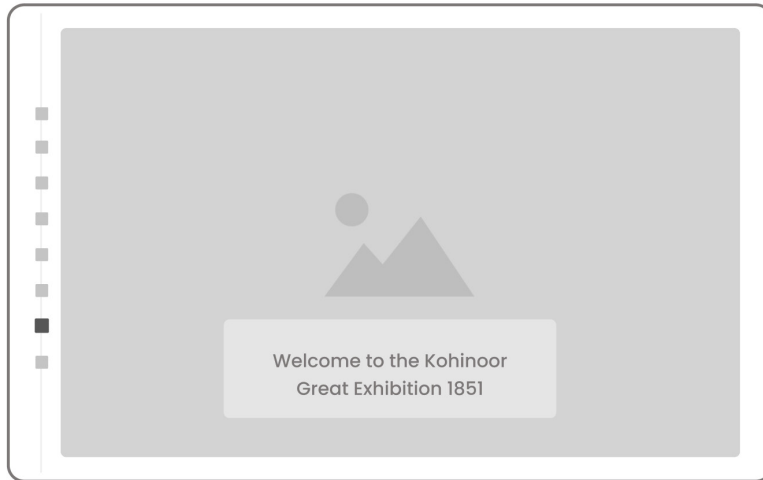


Figure 09: Concept 'Nonlinear narrative Starting at a Key Event'

Direction 04: Visual Index, Linear/Non-linear story access
 Exploring the ways of access to the storyline was considered apart from the style of narration. Based on the initial

research finding that web-based story mediums offer this feature of allowing the user to access the story both through linear and non-linear methods.

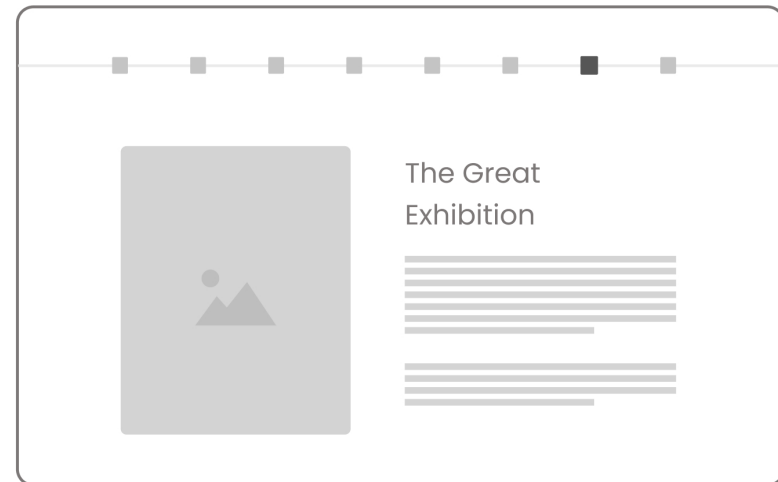
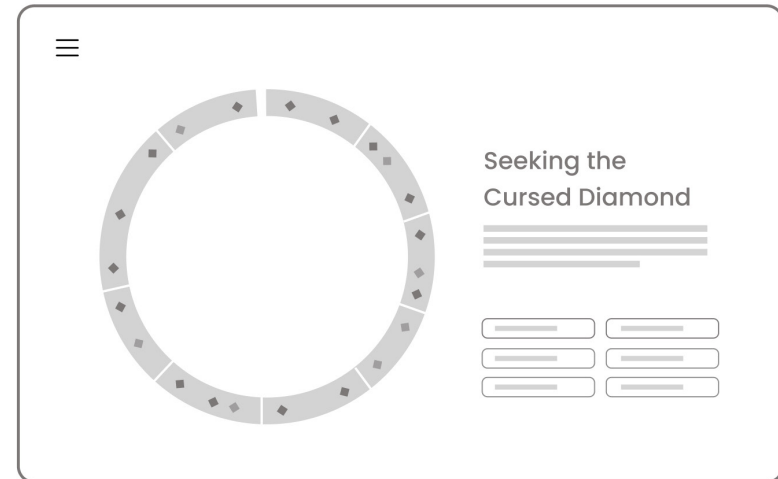


Figure 10: Concept 'Visual Index, Linear/Non-linear Narrative'

Utilising this feature, the idea focused on creating a visual index for the story of Kohinoor using the method of tagging, colour-coding, and marked timelines. This would provide the viewer with the unique experience of consuming the content in many more flexible ways which wouldn't be possible with traditional mediums of storytelling.

Direction 05: Conversational Approach

This concept was considering the possibilities of all the owners of the Koh-i-Noor having a conversation amongst themselves, where each of them can bring to the table all the key happenings during their time to spotlight. For instance, Shah Shuja could talk about how his family found the diamond at a mullah's place who was using it as a paperweight, while Lord Dalhousie could add to the topic to

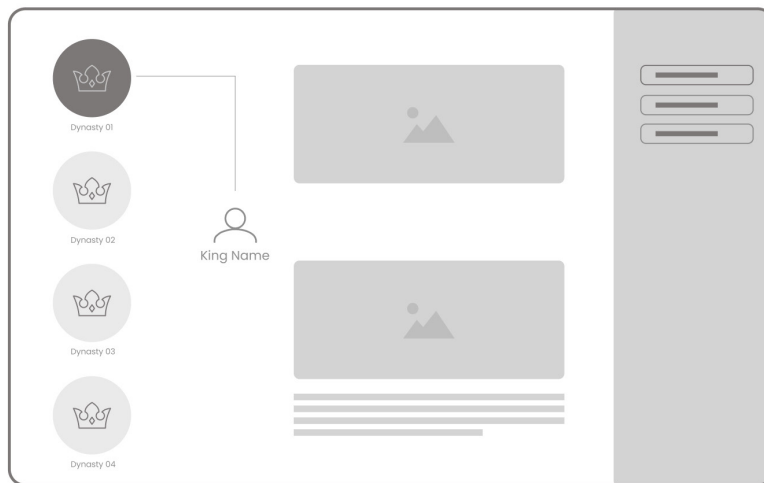


Figure 11: Concept 'Dynasty Conversational Approach'

highlight the diamond caretaker, John's absentmindedness in leaving the Koh-i-Noor in his coat for weeks.

However, this concept again would have stripped the narrative of a lot of its key events in the limitation of weaving them into the concept, and also this would slightly make the experience more text dominant, compromising on the visuals.

Direction 06: Narrative through set questions

Summarising the complete narrative employing 30 odd questions and answers to give the reader an essence of the diamond's character. This idea was built on the thought of providing the reader with a quick and accessible version of the story. The aim was to phrase 30 powerful questions whose answers would uncover most of the events that add

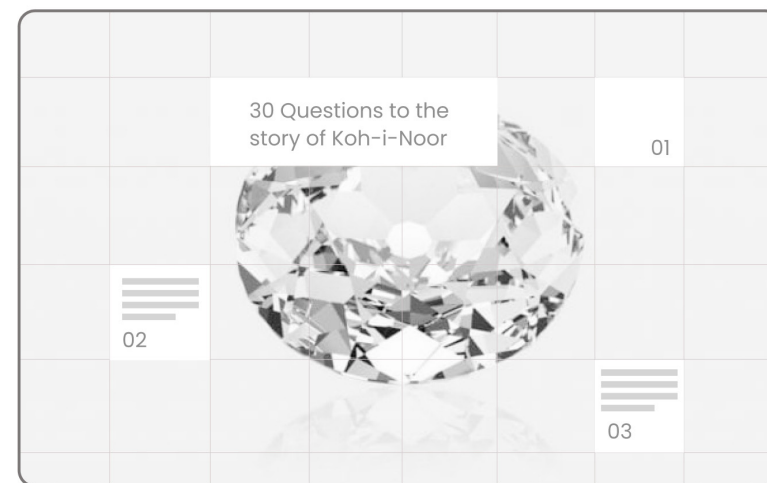


Figure 12: Concept 'Narrative through Q/A, gamification'

value to the journey of the Koh-i-Noor. This was thought of to be presented as the tiles of a puzzle that would form the diamond, in an attempt to add a hint of gamification to engage the reader.

Along the process, various other concepts were explored and reviewed, such as adopting a data-driven approach, superimposing the timeline along the geographical path, narration with respect to the dynasty who owned it, and also the value diamond in terms of the powerful statements made upon it. This included looked at the story in terms of a political statement or intrinsic value it meant for people to own and possess it. However, these concepts were dismissed for various reasons at the earlier stage of the validation and review sessions itself.



Figure 13: Concept 'Narrative through geographical journey'

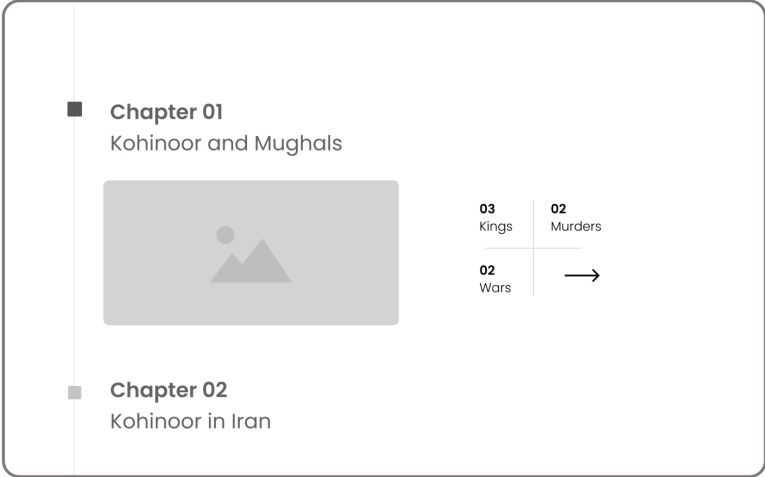


Figure 14: Concept 'Data-driven Narrative'

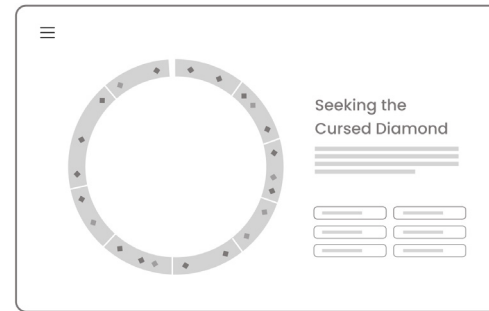
The above-mentioned directions were mapped to the brief at each point and also evaluated in terms of ease of accessibility and understanding from a user point of view and feasibility from a technological point of view. After careful considerations and reviews a final concept was chosen, details of which are described in the following sections.

06 Design

- 6.1 Final Concept
- 6.2 Visualisation
- 6.3 Execution
- 6.4 Interactions and Animations

6.1 Final Concept

After a thorough review and feedback on the shortlisted concepts, a final concept was selected. The visual indexing concept which allows the story to be accessed in a linear-nonlinear fashion was picked to move forward with.



This idea was chosen because all other concepts relied on the narrative structures for novelty, which could also be done using other

storytelling formats such as films and podcasts. The visual index concept seemed to be doing justice to the medium of digital storytelling by leveraging the elements of tagging and hyperlinks to the best of its ability to create an interesting interactive experience. This idea was further detailed and worked upon to arrive at a final proposed output that would divide the interactive narrative into two sections: The Visual Index section and Scrollytelling section.

The visual index section will facilitate a non-linear and interactive way of accessing the narrative, benefitting the user to consume the story in more than one way, giving them the freedom to pick what they would like to read. The scrollytelling section will follow a linear narrative structure

where the user can experience the story in all its entirety, chapter-wise one after the other in chronological order of events. The design decisions for each of these components are detailed below in the following sections.

Visual Index

The motive behind this component of the interactive was to enable a reader-driven approach to the narrative, where the user has control over what part of the story they wish to consume. This idea sprouted from the exercise of extracting patterns from the data collection activity, wherein it was found the diamond had changed ownership (dynasty-wise) about 6-7 times in history and it was made visible to the public eyes only twice before it came to occupy a place at the Tower of London. Based on this, it was thought that tagging and using filters to create a visual index with all the key events and anecdotes from the narrative would be an interesting way to involve the user in the storytelling process.

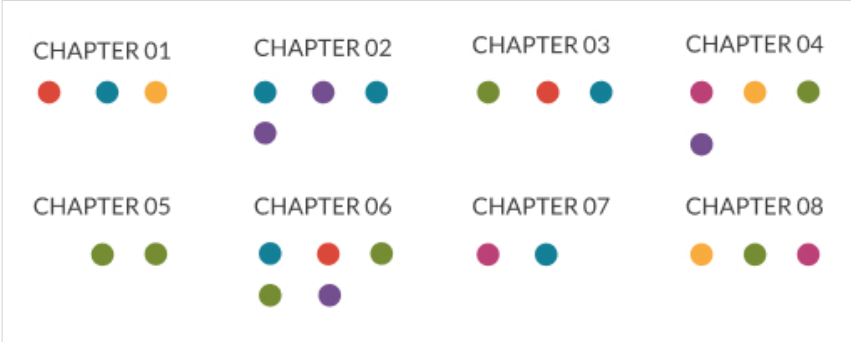


Figure 15: Chapter-wise tagged events (6 Categories)

The initial step in this stage was to tag the prepared narrative content, based on the nature of the event. This exercise yielded 6 tags/filters: Ownership Change, Public Appearance, Curse of the Diamond, Koh-i-Noor goes Missing, The Diamond in an Object, and Change of Place. This resulted in a total of 27 tagged content pieces, which included the key events focused on the diamond. Furthermore, it was necessary to compose the text of these 27 pieces in such a manner that when the user is directed to that section from the visual index, it should read as a stand-alone bit.

The next step was to create a suitable representation for the index where the user can interact with the tags. The idea was to map the identified events on the timeline and encode the tag using either colour or shape. Various ideas were explored for this visualisation based on the ‘Design space’ established for storytelling with timelines by Matthew Brehmer et al.³⁰ The design space describes timelines as characterised by three dimensions: representation, scale, and layout. The representational dimension corresponds to visually salient feature, scale dimension is the correspondence between temporal distances and distances on the display, and layout is used to communicate relations between groups of events.

Based on the guidelines mentioned in this paper and the data at hand, a scan to find the right fit among the 20 viable timelines in the design space was initiated.

Of all the representations the ‘unified’ approach ie. a single timeline presentation was deemed appropriate, considering the data set had no need for multiple timelines to be compared. . Additionally, the ‘scale’ dimension was restricted to ‘sequential’ scales which filtered the 20 options to 4. Although the ‘chronological’ scale would also have been suitable, it was dismissed owing to the needs of the use-case. However, the chronological dates were presented as annotations on the sequential scale.

The shortlisted set consisted of one of each of the ‘representational’ dimensions: linear, radial, spiral, and arbitrary, except for grid representation which was not listed as one among the 20 viable timeline options.

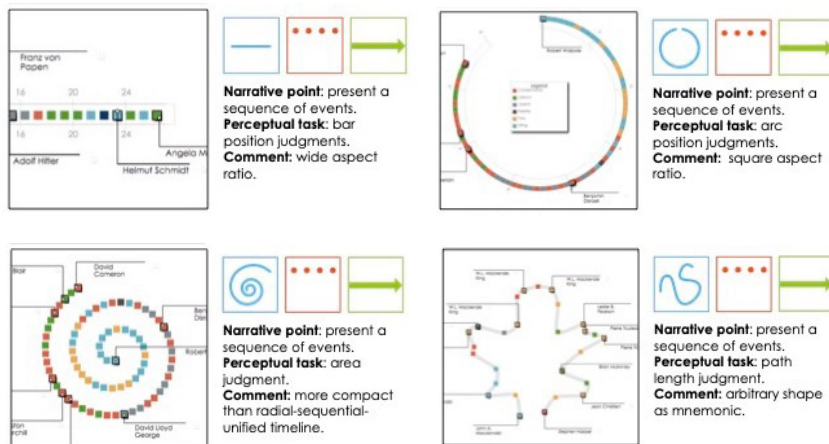


Figure 16: (i) Linear, Sequential & Unified; (ii) Radial, Sequential & Unified; (iii) Spiral, Sequential & Unified; (iv) Arbitrary, Sequential & Unified

The classic linear timeline visualisation, with a sequential scale and unified timeline was undoubtedly the fool-proof representation that would fit most data sets and in this case, the visual index’s too. However, the only drawback was the infrastructural limitation in representing the visual on the screen, since the timeline would extend beyond the screen dimension and involve additional clicks and interactions.

Variations of the shortlisted timelines were explored for the theme of the narrative based on diamonds. After multiple iterations and tweaks, a spiral representation was finalised. This option seemed to be the befitting one considering how it accommodates the whole data set in a compact form over the other options. The arbitrary path also came a second close, although it lacked some structure that the use case demanded, over which the spiral representation was chosen.

After finalising the overall form of the index, the final step was to encode the data set variables onto the visualisation.

Variable	Data Type	Encoding
Name of the Event	-	Annotation/Label
Year of Occurance	Quant. (Discrete)	Annotation/Label
Event Category	Qual. (Nominal)	Colour/Shape

Table 01: Listing of the variables to be represented on the visualisation, with their possible encodings based on data type

This was a fairly simple considering the basic data. Based on all the decision decisions at this stage, the final visualisation of the visual index was developed. The details and functions of the visual index are presented in the upcoming sections of the document.

Scrollytelling

The primary component of the interactive, the scrollytelling section, divided into 9 chapters, where the user will be able to read the complete story of the diamond. Each chapter was carefully curated to stand independently of each other, to be read as a short narrative in itself. All the information for the chapters was derived from the book. There was no particular strategy that was followed in the development of the scrollytelling, it was tackled page by page based on the text.

The first step in creating the scrollytelling was to collect visuals in correspondence to each chunk of text that builds the narrative. The visual media collected included photographs, videos, sketches, handwritten notes, maps, and paintings; a majority of which were accessed from online libraries like The Royal Collection Trust³¹, Government Art Collection³², British Library³³, National Digital Library of India³⁴, and National Library of India³⁵.

In the next step, these visuals were placed in the layout along with the corresponding text, for the webpages to be designed based on the visual guidelines that would be set further on in

the design process. However, in many places, relevant visuals to the events in the narrative were not available, in which case a typographic approach was adopted to tackle this issue.

The key navigational component in the scrollytelling is the timeline element marking all the chapters at each node. Hovering over each node revealed the chapter number and name. The user would be allowed to access the other chapters by clicking on the respective nodes. The chapter the user is currently reading would be highlighted using a difference in size and colour. Another important feature of the timeline was the scroll indication in the form of a line that

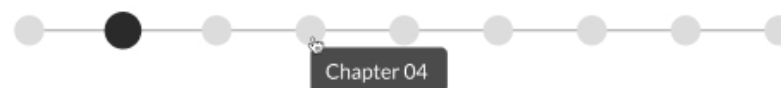


Figure 17: Timeline module fuction in scrollytelling section

would help the users orient themselves to how far along they have come in the chapter. At the end of each chapter, a call-to-action indication would be presented upon clicking which the reader would be directed to the next chapter.

It is to be noted that the visual index and scrollytelling components are interconnected; the user will be able to navigate to the visual index from the scrollytelling, and from the scrollytelling to the visual index at all points during the interactive experience.

6.2 Visualisation Design

After establishing the basic guidelines for the components of the interactive narrative, the visual design of the website was commenced. This began by first building the visual theme and style for the output. For the theme, a lot of references were collected to study the visual trends of history-based websites and publications. It was noted that most historic websites depended highly on collage compositions due to the lack of direct visuals supporting the text.

Colour Palette

Bright yet earthy-toned colours were desired, to emulate the experience of a historic narrative. A total of 9 colours were chosen, one primary colour for each chapter. Apart from these basic colours, other neutral colours were incorporated to creating the visual design for the interactive narrative.

The nine colours were mapped to the chapters based on their narrative/title and colour psychology, to the extent possible. For instance, the chapter 'The Jewel in the Crown' was depicted in purple to portray the royalty, while the chapter 'The New Identity' was presented in a shade of blue signifying transformation.

For visual index's colour coding, the nodes based on filters, 6 of these 9 colours were picked again with slight variations in shade to map to the select filters. This colour coding and the chapter's coding were treated as independent.



Figure 18: Colour Palette adopted for interactive narrative

Typography

Two primary typefaces were chosen for the website, one for titles and the other for running text. While selecting the typefaces, it was done so keeping in mind the character of the Koh-i-Noor diamond: organic yet clean cut. The serif typeface, Merriweather, seemed to fit this description aptly and was used for the titles and subheadings; while a sans serif typeface, Source Sans Pro, was selected for the running text. Additionally, Bodoni 72 is used in some places on the website, such as for character pull quotes.

All the typefaces were carefully selected to serve the web-based platform, optimised in terms of aesthetics, legibility, functionality, and readability.

Merriweather	Source Sans Pro
ABCDEFGHIJKLM NOPQRSTUVWXYZ	ABCDEFGHIJKLM NOPQRSTUVWXYZ
abcdefghijklmnop qrstuvwxyz	abcdefghijklmnop qrstuvwxyz
0123456789	0123456789

Figure 19: Primary typefaces used in the interactive narrative
(i) Merriweather (ii) Source Sans Pro

Graphics and Icons

The website sparingly uses icons or graphics, as it is majorly text and multimedia driven. Although, in a countable number of places, stylised line icons and graphic elements are employed wherever necessary.

Picture Compositions and Editing

As mentioned, a lot of texts in the narrative did not have corresponding or supporting visual resources, in which case photo editing was relied upon to invent visual material.

Various techniques were employed to achieve the desired result, such as amalgamation of two different images to form one visual, overlaying visuals one above the other, highlighting one portion of an image to bring focus to the event that is being narrated, and many more. Each scenario

or event narrative required a different treatment to bring out the implied meaning without affecting the context.



Figure 20: Creating collages to recreate events
Image Sources: Royal Collection Trust (i) Queen Victoria; (ii) Duleep Singh

Besides, it was highly challenging to maintain the overall aesthetic of the website given that the story of the Koh-i-Noor spans over centuries. The initial chapters of the narrative depend on Mughal paintings, which slowly transitions to black and white photographs, while the final chapters use high-quality videos and photographs.

In order to counter the inconsistency in visuals that might arise from this varying pool, coloured overlays and photo editing was adopted.

Grid


As decided earlier for a desktop-centric approach, a 12 column grid, with a 24px gutter space and 74px margin was set to be used for developing the user interface. This would help in later making this responsive for other digital devices, such as tablets and smartphones.




Figure 21: Elements of the screen arranged on a 12 column grid


6.3 Execution and Prototyping


During the execution of this project, various applications and software tools were employed each of which served a different purpose.

 **Figma** is a vector graphics and prototyping tool that is majorly used for creating user interfaces. The designs for the interactive were developed in this application, which also

further used for prototyping. This made it possible to realise and test the interactions and visual elements before they could be passed on to the development phase.

 **Adobe Photoshop** is a popular image editing software developed by Adobe Inc. The software offers other applications apart from image editing, such as for creating digital art and 3D artwork, and simple animations. Adobe Photoshop was heavily relied upon for the project to edit images, create collages and GIFs.

 **Adobe Aftereffects** is another product by Adobe Inc. created specifically for motion graphics and visual effects. This tool came in handy for creating simple animations and micro-interactions in the interactive narrative.

 **Webflow** is an easy-to-use online website building and hosting platform, provided by WebFlow Inc. This online software was used to build pages of the interactive website and test the working of animations, transitions, and other dynamic elements of the design.

6.4 Interactions and Animations

The dominant interactive mode on the website is vertical scrolling, specific to the scrollytelling section. Each chapter is one long scroll, with other transitions and interactions such as hold-and-drag, horizontal scrolling, mouse clicks, on hover.

The interactions and micro animations were created based on the text and visuals that were available and are unique to each anecdote. This required an understanding of the event and how the elements could interact with each other to emulate the desired meaning.

All the interactions were designed to be as intuitive as possible wherein each element should clearly indicate its affordance. For instance, simple micro animations like a blinking circle was used to translate its clickable affordance.

The animations on the website too were developed in such a way that they are subtle and seamlessly fit into the interactive without distracting the user from the story.



Figure 22: Screen displaying a subtle micro-interaction; hovering on the tabs on the right corner of the page highlight the tab using colour and scale

The visual index component of the interactive website uses simple hover and click interactions. On hover, the nodes on the visualisation display their annotations, and click on them directs the user to the respective event of the narrative. This section also uses simple animations and transitions when the user interacts with the filter component.

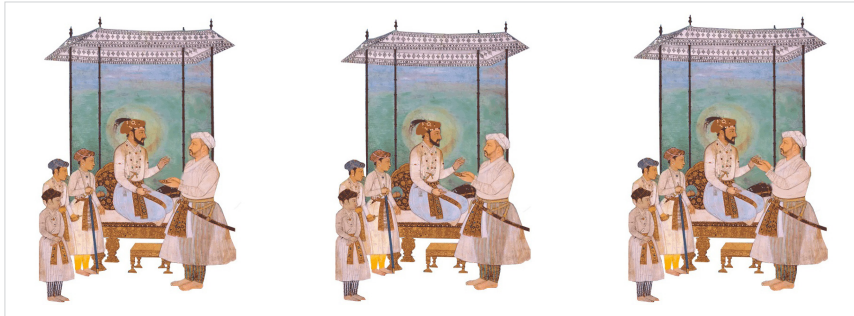
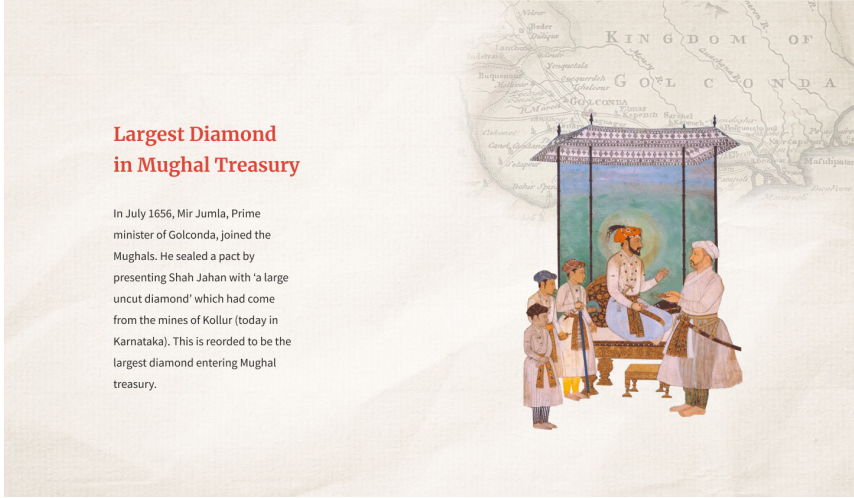


Figure 23: The screen showing Mir Jumla giving the diamond to Shah Jahan with hand movement (top); Key frames of the animation (bottom)

07 Validate

Testing Process

The interactive prototype was validated with people of two categories: the first persona set includes Gen X, with relatively moderate tech literacy who prefer physical books, while the other set includes Gen Y, highly tech savvy who are comfortable with digital resources of information over books.

The validation process was conducted online. The interactive Figma prototype was uploaded on a testing online platform, *Maze.design*, through which links were shared to the testers. The testing process was overseen through a *Google Meet*, as the tester shared their screen while they went about the task assigned. The following parameters were focused upon during the validation process:

Information Accessibility and Usability

This was evaluated by assigning simple tasks to users to be performed on the interactive website and recording their actions and responses. As the user performed these tasks, they were asked to think aloud and share their thoughts. Example tasks: Navigate to a particular chapter, Navigate to an anecdote of the diamond making a public appearance.

The Affordance of Elements and Interactions

This was extracted from the test results when the user was told to interact with the prototype, by observing how they are interacting with the given elements on the screen. This was also further verified against the heat map generated.

User Engagement and Feedback

This was accomplished by asking the user open-ended, semi-structured questions that allowed them to give feedback based on their task performance. For example, why did they abandon a particular section, what did they expect to have found? Is there anything that didn't seem clear to them?

Results

The testing stage revealed interesting insights and provided useful feedback for the project. It was found during this process that at a rudimentary level most people were able to understand the purpose of the interactive narrative. The testing group included a total of 7 participants.

01 Majority of the lot, 85% could comfortably navigate through the scrollytelling section, and intuitively interact with the elements. Almost all the users followed the expected path while performing the required actions.

02 However, people did face difficulty in the visual index component of the website. 57% struggled with recognizing

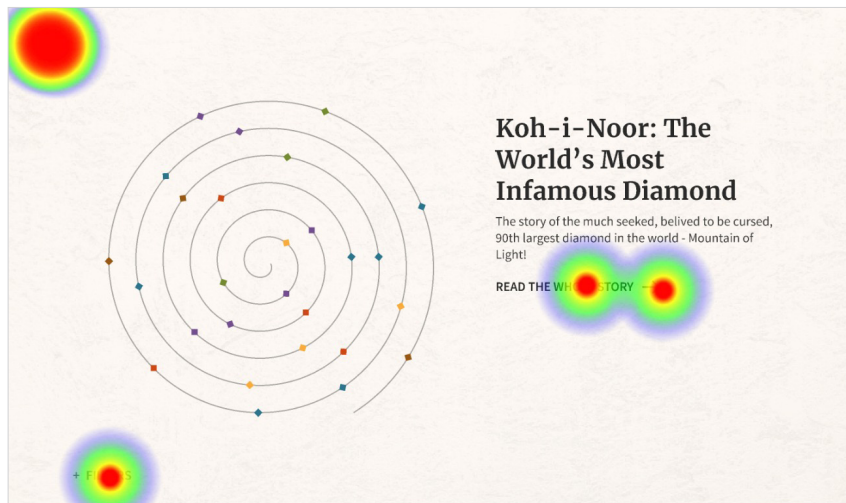


Figure 24: Heatmap of the initial homescreen of the project

its purpose, while some were doubtful about the navigation or filter section. Although the rest did inherently make sense of the visualisation by running the cursor over the spiral to understand its functions. It is to be noted that, the focus group belonging to persona 1 struggled with this section, while the younger lot could make their way through it. Along the way, there were also other improvements that were noted when users interacted with the prototype, to make things more clear.

03 Apart from the observations of the task performance, the questions based on the 'think aloud' activity while they navigated through the interactive yielded helpful responses. Questions pertaining to the difficulty in comprehending the visual index suggested possible improvements which were implemented in the final design. Further, participants who are avid readers shared their thoughts about this project when asked their about this format in contrast to physical books. This brought out interesting takes on the project.

"I would prefer a physical book anyday, for the experience of diving deep into a story for hours and days. However, for a quick information access and gist of a story I'd turn to this"

"This feels like a visual trailer to the book, could be used to attract non-reader into the topic, links to the chapters of the e-book could be provided"

08 Final Design

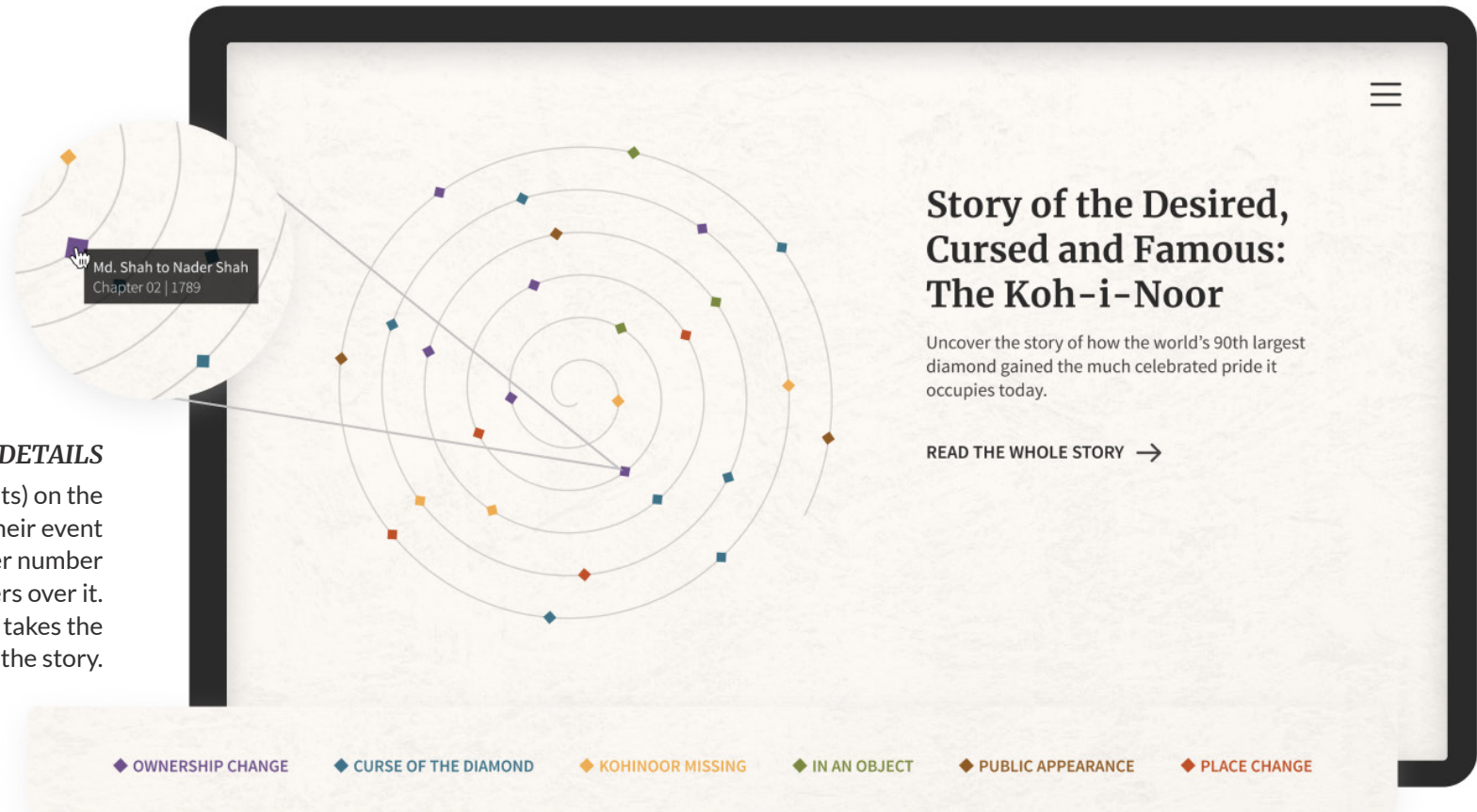
Followed by the multiple design reviews and feedback from the testing in the previous stages of the design process, many iterations of the project took place. Various versions of the visual index section of the website were considered to combat the issues the users faced in comprehending and

interacting with the visualisation. This included subtle edits such as label corrections and changing the open state and positioning of elements, and also considerable changes such as introducing an onboarding and explanatory section for the visual index. The storytelling section in particular didn't receive any vital criticism and checked all the requirements. Based on all this, the chosen concept was realised, the details of which are presented in this section of the report.

The landing page of the interactive website greets the user with a brief introduction to the topic and acclimates the user to the concept of the website. The landing page consists of the visual index narrative with its tags at the bottom, the project title, a hamburger menu and a link to read the whole story of the Koh-i-Noor (scrollytelling).

Upon reaching the landing page, the spiral is revealed through an animation beginning from the inside forming itself. Instantly after the formation of the spiral, the screen moves into an overlay explanatory screen that introduces the user to the visual index prompting them to interact with the visualisation to access snippets of the events of the whole story. Clicking anywhere on the screen releases the overlay and explanation leaving the user on the landing page to interact with the interactive narrative.

This section illustrates the salient features and details of the interactive narrative with the help of some key screens, of both the visual index and scrollytelling components.

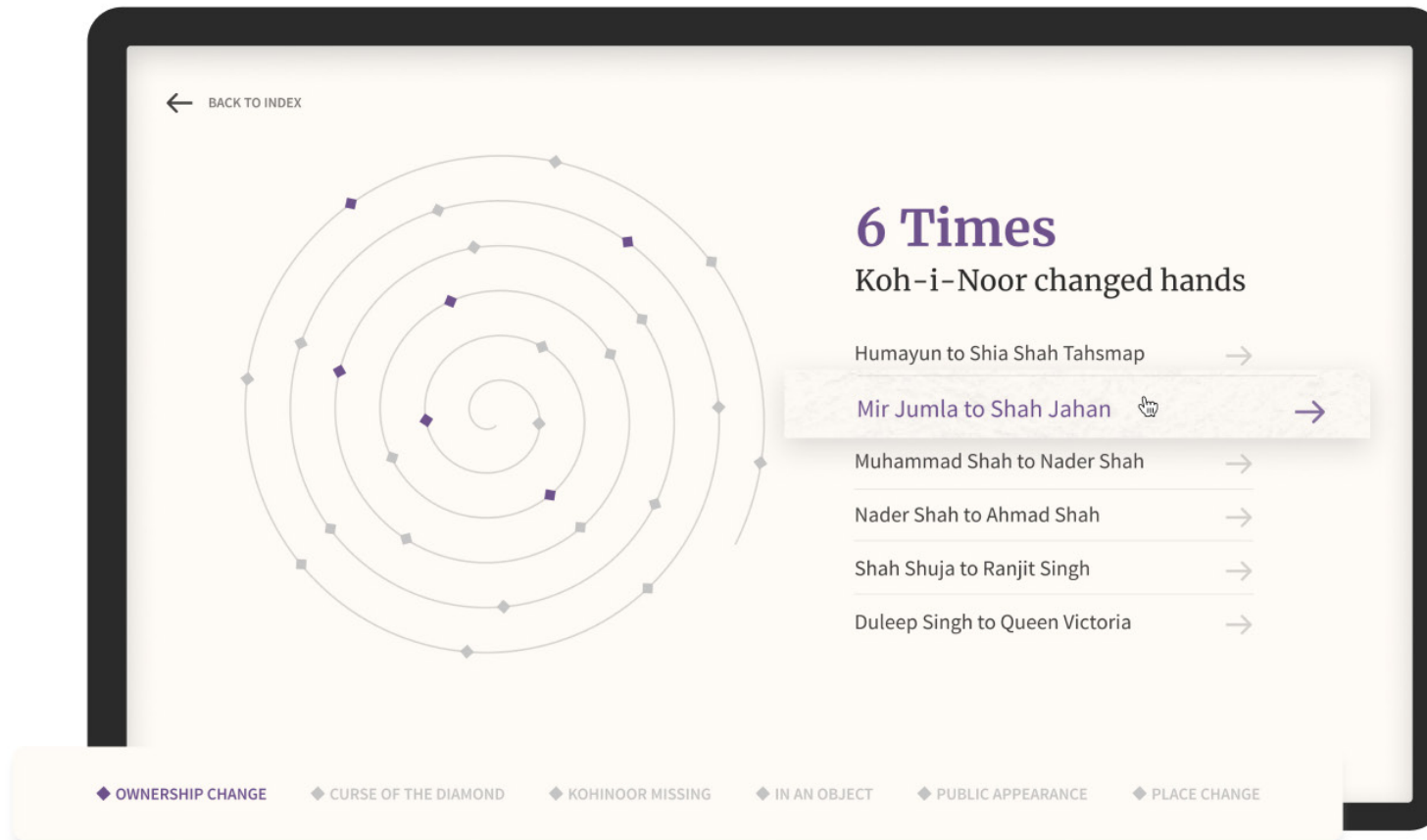


NODE DETAILS

The nodes (events) on the visualisation display their event title, year and chapter number when the user hovers over it. While clicking on them takes the user to that part of the story.

LEGEND/FILTER

The visual index's legend are listed at the bottom of the page, displaying all the six categories of event tags with their corresponding colour codes. These also function as filters for the visualisation.



FILTER APPLIED

When the user selects a particular tag at the bottom of the screen, they all the nodes (events) pertaining to that tag and a list of those events on the right side of the screen.

ACTION HIGHLIGHT

When the user hovers to select to navigate to a particular event, the event gets highlighted indicating the user to click on the story.

SCROLL INDICATION

On all chapters of the scrollytelling section, timeline is made available to the left hand corner of the screen with a line that indicates the length of the chapter, informing them how far along the chapter they have come.



CHAPTER 01
Tracing the Origin of the Koh-i-Noor

CHAPTER 07
The New Identity

ABOUT | INDEX

CHAPTER TO CHAPTER NAVIGATION

The reader can access any chapter of the narrative by clicking on the indicators on the timeline.

Babur comes to

In April 1526, Zahir-ud-din Babur, a Turco-Mongol prince from Ferghana in Central Asia, descended the Khyber Pass. He defeated and killed the Delhi sultan Ibrahim Lodhi, at the [Battle of Panipat](#); a year later, he crushed the Rajputs. He thereby established the Mughal dynasty, capital at Agra, which ruled northern India for 330 years.

The First Battle of Panipat, on 21 April 1526, was fought between the invading forces of Babur and the Lodi dynasty, in Panipat.

USE OF HYPERLINKS

In many places hyperlinks are used to allow access to more details and secondary information about the events. These link on hover display a gist and upon clicking open a slider that mentions more information for the reader to consumer, if they wish to.

SUPPORTING ANIMATIONS

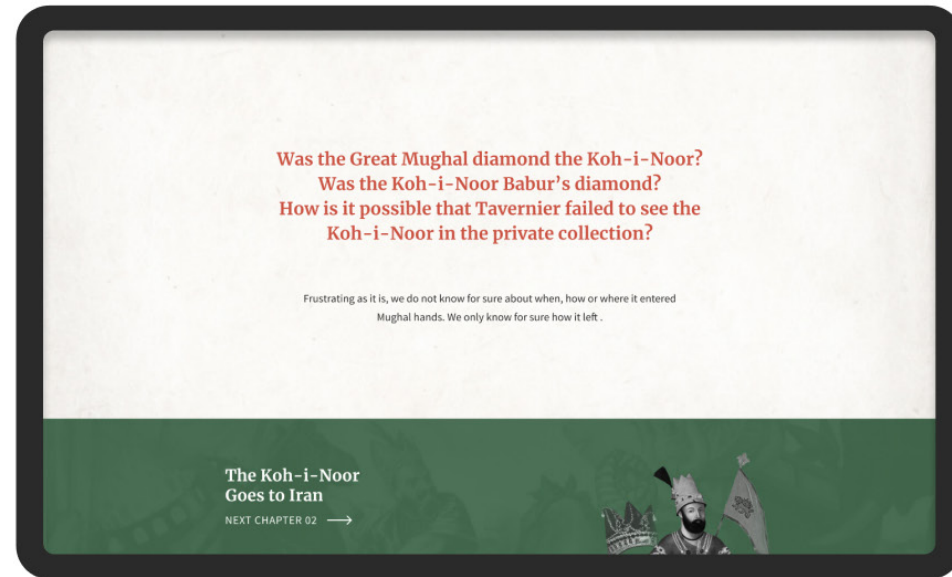
Various slides of the narrative use animations to drive the story and support the text. For example, this section describing Babur's entry to India maps his route from Ferghana to Agra as he wins the Battle of Panipat to establish the Mughal kingdom.

NEXT CHAPTER NAVIGATION

When the reader reaches the end of a chapter, a banner with a link to subsequent chapter is displayed at the bottom.

These banners are colour coded to the respective chapter's primary colour, indicating a new section.

Examples of few chapters are displayed below.



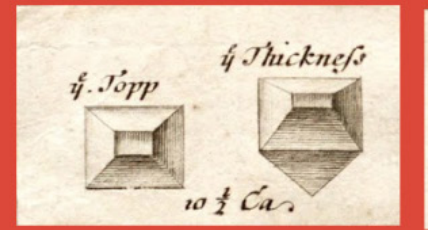
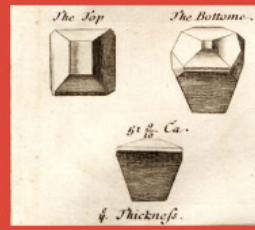
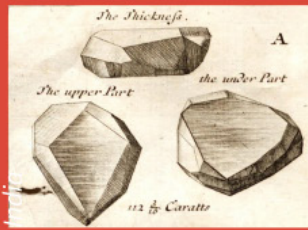
One Last Glimpse

In 1665, Jean Baptiste Tavernier was given by Aurangzeb the honour of being shown the highlights of the Mughal treasury.

Among the stones Tavernier was shown, the enormous Great Mughal Diamond he says was the gem given to Shah Jahan by Mir Jumla. He also saw two other great diamonds, which he calls the [Great Table Diamond](#), and the [Darya-i-Noor](#), now in Tehran.

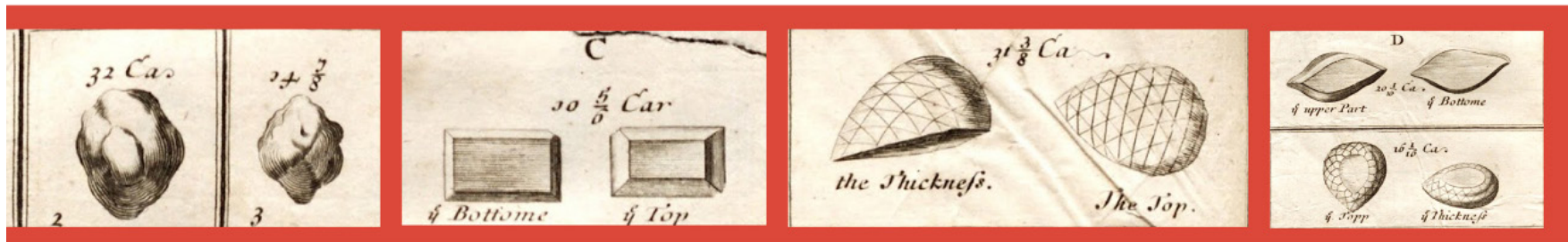


Tavernier's sketches
from his visit to



HORIZONTAL SCROLL

A few sections of the website horizontal scroll where each scroll reveals supporting information or visuals related to the event. These horizontal scrolls, however, are triggered by vertical scrolling.



The Great Exhibition

As subdued as Queen Victoria had seemed upon receiving the diamond, she was ebullient on the day the Koh-i-Noor, and other treasures, were to be revealed to the world: 1 May 1851, at 'The Great Exhibition' in London.

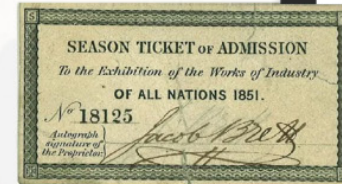
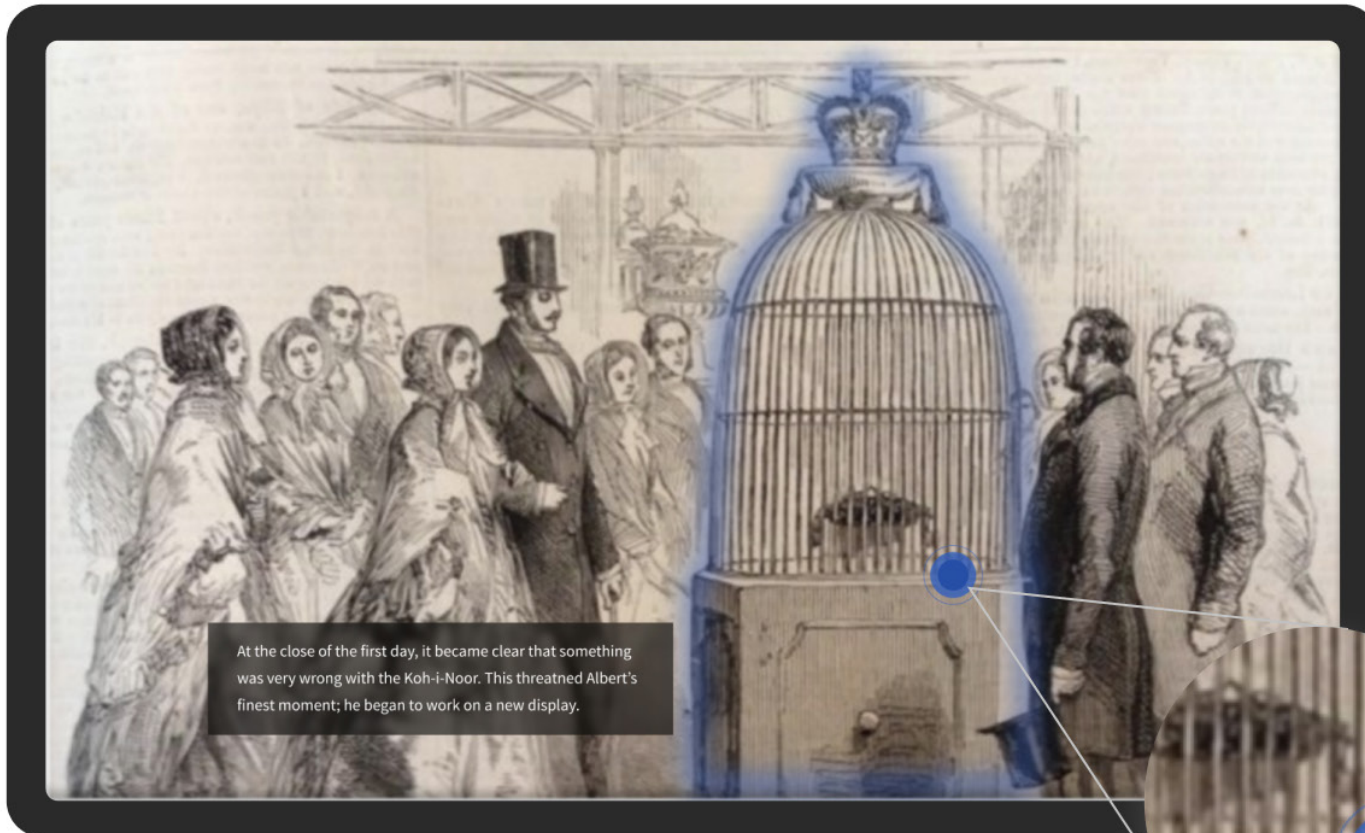


IMAGE SOURCE

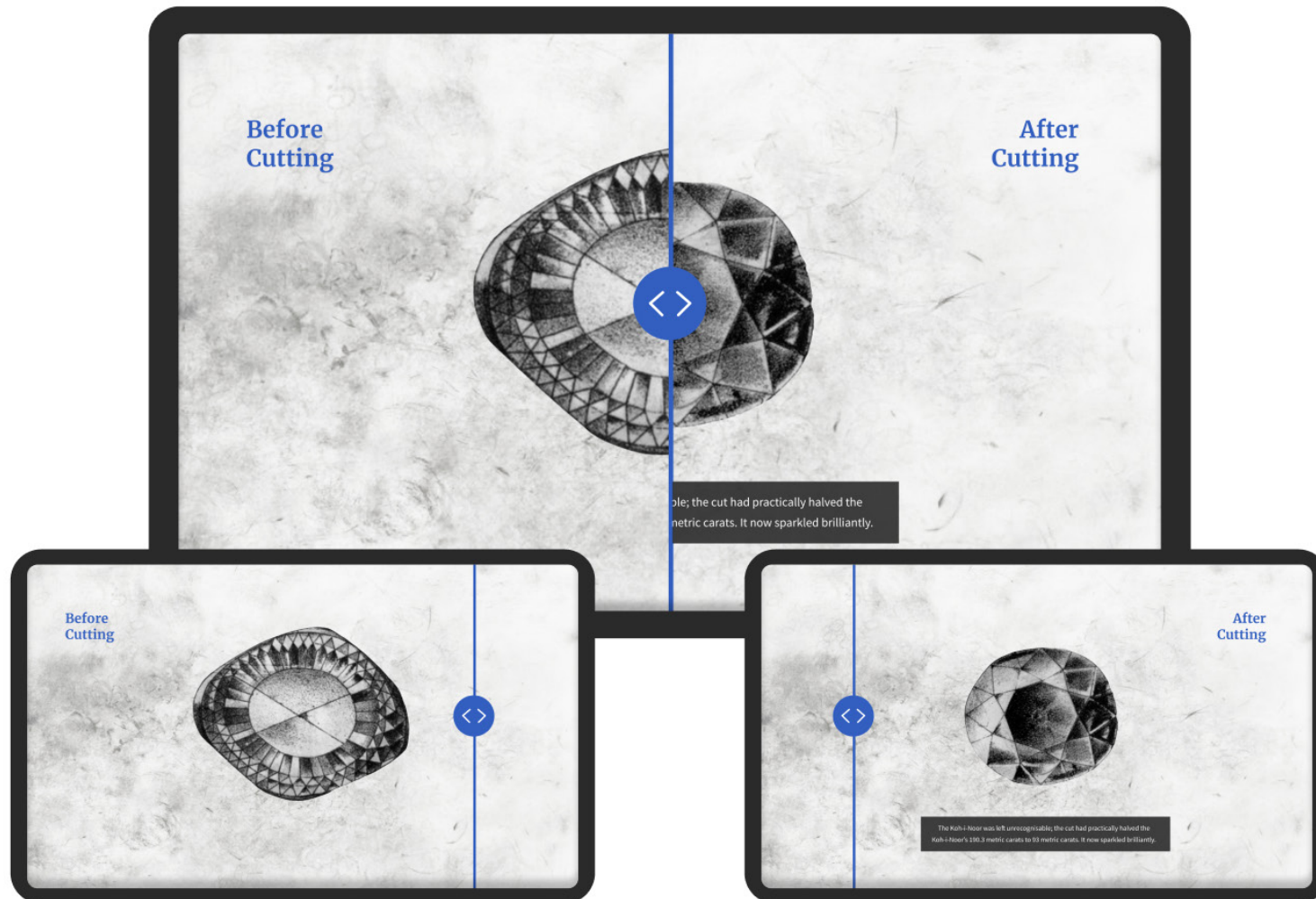
All the images on the interactive narrative are sourced from online libraries and credible sources. These sources are started when the reader hovers over that image and clicking on these images in some cases leads them to the respective site.



At the close of the first day, it became clear that something was very wrong with the Koh-i-Noor. This threatened Albert's finest moment; he began to work on a new display.

MICRO-ANIMATIONS

The website employs minimal microanimations for the reader to intuitively navigate through the narrative. For instance, this blinking blue button exhibits its affordance to be clicked for the user to move to learn more about the exhibit.



This page is an exhibit for the hold-and-drag action used in the narrative, where the reader can interact with the slider element by dragging it to either sides to reveal the Koh-i-Noor diamond's form before and after it was cut. The slider has a double-sided arrow to make this interaction more prominent and clear.

09 Discussion

An Effective Storytelling Tool for NonFiction Narratives

Interactive Digital Narratives like the Koh-i-Noor diamond's journey can be a captivating and powerful approach in communicating historic information to engage broader audiences. Most often nonfiction narratives tend to capture the readers' attention a little less when presented with long

paragraphs of text. Even a few images here and there don't do the trick. However, incorporating multimedia elements in the form of videos, photos, and animations to complement the content engages a larger audience.²² Interactive digital narratives also offer the chance for the users to interact, in some cases also participate, in the narrative which increases the user involvement, making it a reader-driven experience rather than just an author-driven one.

It is to be borne in mind that interactive narratives should strike the right balance between keeping the structure of the narrative intact and playing with the creative visualisation and multimedia amalgamations. It is usually observed that text is the driving factor or backbone of the project that drives the narrative complemented by visual media and interactions.¹⁹ However, deviations from this trend are justified when the context of the project calls for it. The narrative quality of interactive narratives is reflected by the powerful use of hyperlinks, one of its remarkable features. Hyperlinks allow the author to play with the narrative without compromising on its structure by giving the reader control, affording room for creativity.¹⁶

Potential of Interactive Digital Narratives

The web-based medium also affords greater creative freedom for storytellers to communicate the story by leveraging the features unique to this platform. For example, utilising the flexibility offered by hyperlinks and tagging in

telling a linear narrative in non-linear ways, like incorporating the visual index in the Kohinoor story resulted in an involved experience for the users. An experience like this could not have been achieved if the story was disseminated through other traditional storytelling mediums. Interactive narratives can help a lot of storytellers across domains, by finding applications apart from just education, journalism, and entertainment. Storytelling, as discussed, is a part of human nature and it is a powerful tool employed in most walks of life. Incorporating this storytelling tool, by further leveraging the compelling format of interactive digital storytelling, a lot can be achieved to its credit.

Breaking down complex narratives, especially non-linear narratives, into easy to comprehend portions, making them more accessible and captivating on the web is gaining much-deserved attention. In this regard, interactive narratives hold immense potential for the designers, developers, and storytellers from all fields to explore their possibilities.

Limitations

Although the project output has managed to cater to the project brief, it does so within a few limitations. Firstly, lack of access to high-quality visuals resources associated with the events of the story posed challenges during the development of the website, since visual media plays a key role in interactive narratives. Additionally, the representation of the visual index was limited to a sequential scale, mapping

a chronological one onto a spiral was challenging. However, this could be taken up in the future iterations of the project.

Future Work

The project is open for improvements and additions that could add value to it in any capacity. A few identified future prospects envisioned for the project include:

01 Adapting the interactive narrative experience to multiple devices such as tablets and smartphones. This would further broaden the reach of the content making it accessible to a lot more people.

02 Incorporating measures to improve the web accessibility of the interactive narrative, by including more explicit visual cues, semantic HTML and ARIA landmarks. Think of an alternative representation for the colour-coded driven visual index component of the interactive.

03 An extensive testing and validation of the final output in the developed stage would yield more insights that could be incorporated to enhance the experience further.

04 Expanding the source of the narrative beyond the book to include other parallel stories to introduce a wider perspective to the story. This could also be extended to include ancillary publications or movies, that in some scope contribute to the primary narrative: the Koh-i-Noor diamond.

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