

# **History of Art – Design and Implementation of the Learning Tool in the Digital Age**

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## ABSTRACT

The study of art history is an important part of our lives, but unfortunately, it is mostly understood as a very conservative and specialized domain distracted from reality. As the interest of history of art seems to fade, designers play a more important role to turn this situation around. The purpose of the study is to examine the effects of digital media on education and what those benefits might be in the field. The theoretical part studies art history, its methodology, ways of interpretation and popularization. In the second part are analyzed the real examples, across the Czechia and the rest of the world, to explore trends, identify basic characteristics, make comparisons, and show how they utilized the potential of digital technology. The best practices show how the subject discussed, is currently being solved and where these solutions fall short. Last project part describes the suggested solution. It is an educational website, where the main emphasis is laid on putting the artwork into context, both world and Czech, in a technical, political and cultural sphere. According to the theoretical survey, understanding the context is one of the keys for visual arts study. A final product of this work aims to find an unconventional way how to provide an overview of the last hundred years of Czech art scene, trying to make this process more discoverable and entertaining.

**Keywords:** art history, education, interactive timeline, information architecture

## ABSTRAKT

Štúdium dejín umenia je dôležitá súčasť našich životov, bohužiaľ väčšinou chápaná ako veľmi konzervatívna a špecializovaná doména odtrhnutá od reality. Vzhľadom k tomu, že záujem v tejto oblasti upadá, o to dôležitejšiu úlohu zohrávajú designéri, aby túto situáciu zvrátili. Cieľom tejto štúdie je preskúmať vplyv digitálnych médií na vzdelávanie a objasniť výhody aké by v tejto oblasti mohli mať. Teoretická časť sa venuje štúdiu dejín umenia, jej metodológii, spôsobu interpretácie i popularizácii. V druhej časti práce, analýza reálnych ukážok zo sveta i Českej republiky, skúma trendy, identifikuje základné charakteristiky, porovnáva a poukazuje na spôsoby využitia potenciálu digitálnych technológií. Toto pokazuje no to, ako je dané téma súčasne spracovávané, a naopak kedy tieto riešenia nie sú dostatočné. Posledná časť práce popisuje autorom navrhované riešenie. Tým je vzdelávacia webová stránka, v ktorej je hlavný dôraz kladený na zasadenie umeleckého diela do svetového a českého kontextu, a to v technologickej, politickej i kultúrnej sfére.

Koncept vychádza z konštatovania z teoretickej časti, ktorá dokazuje, že pochopenie kontextu je jedným z kľúčov pre štúdium histórie umenia.

Finálny produkt tejto práce si kladie za cieľ objaviť nekonvenčný spôsob ako priblížiť posledných sto rokov českej výtvarnej scény, a tiež to ako urobiť tento proces viac vzrušujúcim a objaviteľným.

**Kľúčové slová:** história umenia, vzdelávanie, interaktívna časová os, informačná architektúra

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„Your ideas is only as good as how you present it“  
– Mika Aldaba

I hereby declare that the print version of my Master's thesis and the electronic version of my thesis deposited in the IS/STAG system are identical.

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## INTRODUCTION

I am a big fan of art history, though not at the academic level. I remember studying art history in school from textbooks full of dates, places, and names. We were taking small chunks of history chronologically in sequence. This approach has never made a pattern that would make any sense to me. Moreover, I had to learn the topic from the scratch repeatedly, as it was hard to retain gained knowledge. Nowadays, the exploration of art history is still a difficult challenge. It is because of the monstrosity of available learning sources. This subconsciously discourages me before I even open a book or immerse into an online database. But the reason, why this work deals with art history is not only personal. I realized I am not the only person who deals with this. As a consequence, I decided to explore the issue and to come up with worthy, innovative solution, which will disclose this wonderful part of our lives.

Work to create something that I am interested in, will enjoy myself and may help the others are criteria that indicated, that this will be meaningful and worthy.

## **I. THEORETICAL PART**

## 1. ART HISTORY

„Looking at art from the past contributes to who we are as people. By looking at what has been done before, we gather knowledge and inspiration that contribute to how we speak, feel, and view the world around us.“ [1]

The reasons why people are interested in art are various. Whether it is a social point of view, relaxation or escape from reality, it is also part of school systems, where the knowledge of art and historical events is mandatory. Unfortunately, the way art is interpreted to us can seem to be too academic, tedious, nonrelevant, boring and little discoverable. Thus, interest in art history is in decline. Graphic visualization of the google data in the Figure 1 can prove it. It shows google searches for word „art history“ in the world compared to Czechia from 2005 to 2017.

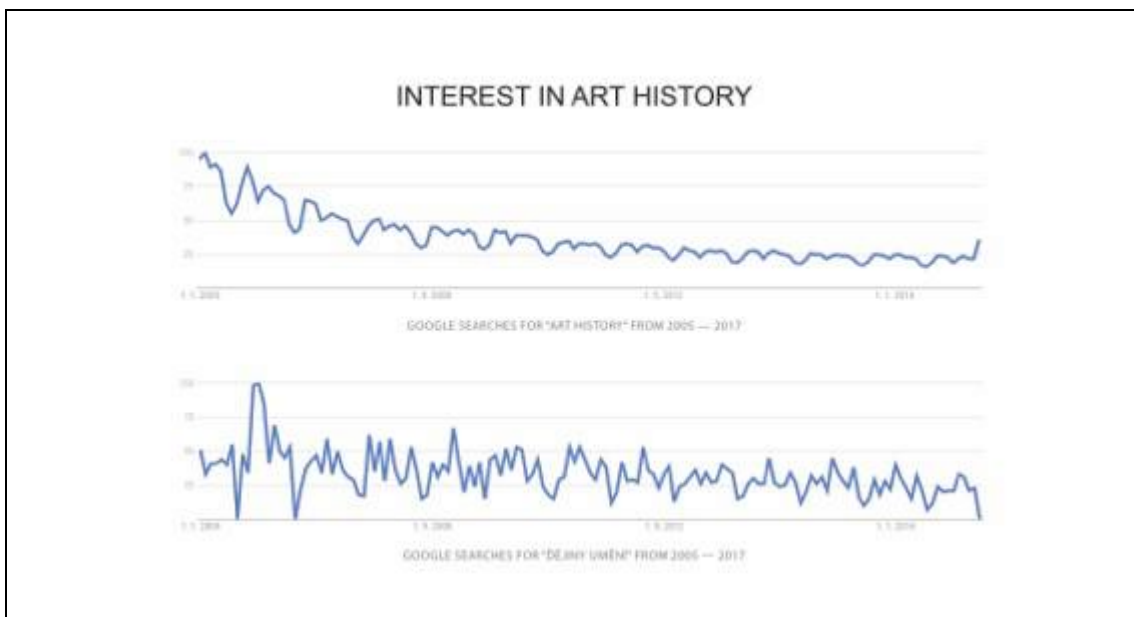


Figure 1. Interest in art history

### 1.1. Art interpretation

#### 1.1.1. Art interpretation through time

The field of Art History is traditionally partitioned by eras and regions, with further subdivision based on media. Most today's Czech curriculum follow this system. But when we look at the history of art interpretation, we see other ways how to grasp it. What follows, is a short overview of how the art was observed. Earliest writings on art were short passages about artistic techniques and later personal reminiscences of artists. With emphasis on development and

progression of art, and also due to a biographical account of Italian artists is Tuscan painter Giorgio Vasari the first, who attempted to write true history. This approach held sway until the 18th century when criticism took a turn. Johann Joachim Winckelmann (1717–1768) was a scholar, who criticized Vasari's personal attitude, as it was a unique viewpoint of the artists. In the mid 18th century, culture has become one of the most discussed issues all over Europe. In particular, the French have taken up the issues of contemporary art. New institutions of public exhibitions, so-called Salons with its regularity and civility, together with the development of journalism have provided a base of that. The repertoire of the first specialized art historians included scientific catalogs of museums and galleries, memorials, expert tour guides for tourists grouped by countries and national schools. The first author of some kind of manuals with a lot of technical notes was Franz Kugler. He was followed by his apprentice Jakob Burckhardt, thanks to whom art could be understood in a greater complexity and universality. A further step in the development of the field was the influence of philosophical positivism and the successes of natural sciences. Hippolyte A. Taine identified three basic sources of race: culture, geographical environment, and historical background. In the history of art at that time, two artistic and historical concepts appeared: the theory of visual style (so-called formalists) and the theory in the area of content meaning (so-called iconology). After the Second World War, at university departments in England and also in the United States, an interest in the content interpretation of the history of art has grown. Iconology found its study base in the analysis of the subject of artistic work, conventional allegories, literary themes, and symbols. Art history established interdisciplinary cooperation with historians of political, literary, religious and scientific institutions and with the history of ideology. Until the 20th century this field was explored especially by German academics. Heinrich Wölfflin (1864–1945) is regarded as the father of the modern art history, thanks to his scientific approach and stylistic analysis. He focused on studying art by using psychology, comparison, and nationality. Studying art through comparison is the most interesting feature of his approach. It was completely contrary attitude compared to Vasari's biographies. He was dedicated to the idea, that we can understand distinctive elements of art style by juxtaposition and moreover, he promoted "art without names". The number of important twentieth-century art historians studied at the Art University of Vienna. The first generation focused on reevaluation of the late antiquity, which was formerly granted as the period of failure and decline. The second generation, including Max Dvořák and Ernst Hans Gombrich, gained a reputation for unrestricted and thoughtless formalism. Gombrich has always studied and compared artwork in a particular historical context. What continues to be used in the 21st century by art historians is iconography – understanding of the symbolic content of art. The most prominent amongst them was Erwin Panofsky. This approach takes into account personal, technical, and cultural history into

the understanding of a work. It looks at art not as an isolated incident, but as the product of a historical environment. Sigmund Freud's and Carl Jung's psychoanalysis of the artist is considered the next prominent method. During the mid-20th century, art historians embraced social history to show how art interacts with power structures in society. One of the approaches was Marxism, which attempted to show connectedness with specific classes and how images carry information about the economy. Feminist art history, semiotics, and new materialism have also played an increasing role in art historical literature. Scholars with specializations or concentrations based on regions, such as Africa, the Ancient Americas or Asia are a growing minority.

### **1.1.2. Interpretation of a work of art**

In a broader sense, it is a way of knowing, interpretation of the meaning and clarification of an artwork. Thanks to which, it is intermediated to someone for whom it would otherwise not be accessible. The aim is to develop the viewer's ability to recognize, understand and experience the work of art. This experience may be affected by various levels of understanding, in which different place, time, age and knowledge play a role. This interpretation is essential because without knowledge of other significant aspects and circumstances of work's creation, we are able to infer only a part directly from the material nature of the artwork. Interpretation of work of art can take two forms, humanitarian, which assumes the artist's intentions and free interpretation. The basis of the first approach lies in the analysis of materials, techniques, composition, colors, formal description of individual parts, style classification, artistic mission and function characteristic, identification of its creator or client and of course determination of the date and location. As already mentioned in the chapter above, humanistic approach demands sociological contextualization in addition. Heinrich Wölflin expressed his concern over the loss of the meaning of art if the art historian were able to explain everything about the work of art. In that case, it would lose its reason for existence. On the other hand, free interpretation, takes the view that the meaning of an artwork is up to the viewer and not the intention of the author. Therefore, a scope for own interpretation should be left. It is not apparent which solution is correct, but the main thing is that the interpretation should offer a variety of options.

Artwork interpretation is also closely related to the form of its presentation. In a museum environment, there are two main concepts. First is modernistic approach with a pure exhibition, when a work is placed in clean space accompanied by a brief label. On the other hand, contextual tendencies try to explain the historical framework. This approach goes back to the 19th century, and since that, it was significantly criticized. For example, Czech art historian and curator Ladislav Kesner says that providing a context of work includes the

interpretation of the work itself, moreover, to some extent it is subjectively influenced by the curators themselves. Nowadays, with new technological possibilities, new alternative tendencies are emerging. These approaches are discussed in more detail in chapter Digital Art History. It allows, for example, detailed view of work and other wonderful things. A great example of a tool that explores the possibilities of new technologies is a mobile application of the *Augmented Reality Museum*.

Interesting ways how to provide the interpretation non-verbally are:

- by the way, the artworks are exhibited and installed, different mutual confrontation are created
- by the creation of new artwork
- by interpretation quotes
- interpretation by another kind of art, such as theater, music or performance
- interpretation by activity, such as game, competition or animation

### **1.1.3. Methodological tendencies of learning art history**

Commonly used way to explain art history is by portraying eras, styles, authors, and their artworks on a timeline. The question arises if a chronologically orientated narrative is the best and most efficient way of organizing the substance of history. It should be realized that the chronology is not the natural given fact of history, but was created as a cognitive tool. An alternative to this could be a method of teaching according to the thematic areas, such as „women in art“. This perspective requires reader's solutions and taking their own position. Furthermore, the consequence of conservative chronological approach is that schools do not succeed to teach contemporary history until the end of the school year. Linear understanding of history represents a simple and socially conventional concept of time and so alternative concepts, such as thematically oriented history do not try to push it out. Their advantage lies in enhancing a quality of learning, developing historical literacy, critical approach and strengthening the interest in the subject.

*Methodological and Pedagogical Centre* describes modern concepts of teaching in its work *Methods of Activating Students in Teaching History*. The problem-solving technique can be the most beneficial for the purpose of this study. The student discovers new knowledge by solving diverse problems. These meet certain requirements. For example, they should be based on a life situation of the student and contain an unknown element, as it will attract his attention. The experience should be adequately challenging and corresponds to the student's intellectual. The art historian Heinrich Wölfflin introduced another technique of learning art history of the 20th century. He developed a teaching method of using two projectors positioned side by side in lectures to allow simultaneous display

and comparisons of two images. Another approach prefers teaching in condensed form. „Keywords in its system approaches the way the human brain works. Presentations with short outlines do matter because no one can be continuously concentrated.“ [2]

Understanding the historical context is a key for a study of visual arts. The general periodization set a wider frame and overall significance of particular events before digging too deep. A fundamental premise of this approach lies in the representation of history in global context. This approach assumes that history is no longer a subject concerned solely with national history.

„We can often see a serious gap between the rhetoric and the reality of history education. For example, at the level of rhetoric, there is a growing commitment across Europe to teach students historical skills and critical thinking, not just providing them with a pre-packaged historical information and knowledge. However, many courses at a school level and, I would suggest, at a university level as well, are so bound with content that needs to be covered, that there is no scope to actually practice and apply these skills or to develop historical thinking.“ [3]

Author in the book further notes, that bad work of teachers with documents and sources, is due to the regime, in which they were formed. The most important thing then was to know the sequence of events. The author also considers that the most important thing for a student at all levels is to set a local history into a global context and vice versa. The understanding of „a global dimension“ can be achieved by:

- more comparative history
- building knowledge in other sub-disciplines of history, such as an economy, culture, environment, politics or technology
- an introduction of a multiplicity of perspectives

„Excursion to a foreign sensibility“ and „the period eye“ are terms gained by contemporary art historian Michel Baxandall, who is dedicated to art in historical-social context. There are also other directions of explorations of art. Let us mention psychological, philosophical, aesthetic, functional, metaphysical, ontological, structural, relativistic or anthropological approach. [4]

#### **1.1.4. The curriculum**

School textbooks are undergoing changes, particularly in former communist states. After the collapse of the communist system, most of the countries added some extra pages, which discussed events after 1989. In this regard, even controversies of Japanese history textbooks can be mentioned. They primarily concern the Japanese nationalist efforts to whitewash the actions of the Empire of Japan during World War II.



„A new, integrated narrative text, which throws a different light on the entire epoch since 1945, can be found only in textbooks published in recent years“. [5] However, most of them still have not been formally approved and remain to be based on the old program. However, in some countries, the situation is better. Falk Pingel from *The Georg Eckert Institute for International Textbook Research in Braunschweig* in the project *Learning and Teaching about the History of Europe in the 20th century* informs about the general situation of this matter. For example, in the Russian Federation, there are only proposals. On the other hand, in Italy, new guidelines focused more on contemporary history have been adopted. Based on the study, a better situation can be observed in Germany and France, but also in Italy and Lithuania, which, by the way, are countries with open textbook markets.

Most of the schools follow a chronological order, and because modern history is taught at the very end of schooling, it is not common, that whole one year of schooling is dedicated to it. It has to be said that this differs from country to country. Netherland is one of the few that present the subject of Europe in a pupil-oriented perspective. Its syllabus is moving away from the prevalent chronological approach and focuses more on studying forms of government or relationship between the economic powers.

The *Institute for the Study of Totalitarian Regimes* under the auspices of the *Ministry of Education, Youth and Sports* prepared a research titled *Teaching Contemporary History*, which examines the situation of teaching contemporary history at Czech schools. It was conducted in 2012 and was attended by 1,600 teachers. The aim of the research was to get an overview of the situation and to examine relations between the teacher and the subject itself, at primary and secondary schools. Research results beat myths, that among teachers there is an insurmountable resistance to innovative teaching methods or that they are afraid to update and link the historical substance to the contemporary world. The truth is that 88% of teachers do so often. The study also shows that they regard the student's ability to seek and evaluate information as the most important.

## **1.2. Digital art history**

Digital teaching has stimulated the development and application of tools that enhance the experience of viewing art and architecture in new ways. These tools make it possible to virtually move through 3-D reconstruction of ruins, view images in high quality and zoom in for details, overlay different layers of an etching, track the creation of a painting, to model never constructed designs or to

map archaeological sites. These tools are yielding new perspectives on the subjects of history.

„It is important to realize, that all technological equipment that transmits information about exposed art and opens up new dimensions of its perception are meaningful, only if they help to enrich and expand the real experience of the artwork. It shouldn't draw the attention to itself or replace the intermediate contact with the exhibits.“ [4]

The range of sources can be divided into following categories: bibliographic sources, encyclopedias with texts and images, databases with abstracts or with full texts and images, art journals, interactive timelines, etc. One of the most overwhelming databases can be considered *WikiArt*, which features more than 150.000 artworks. They can be browsed by styles, genres, media, popularity, by date of addition or randomly. Artists are ordered alphabetically as well as they are sorted into following categories: art movements, schools, groups, genres, fields, nationalities, centuries, art institutions, chronology, popularity, female artists or the user can browse by recently added artists. Other examples of online art database include *Oxford Art Online* or, from the UX designer point of view better-solved database *Google Arts & Culture*. On this site, artists, art movements, as well as historic events can be browsed either by alphabetical order or chronology. These topics are listed separately on the timeline. A more interactive example is *Heilbrunn Timeline of Art History*. It presents a thematic, chronological, and geographical exploration of global art history through *The Metropolitan Museum of Art collection*. As stated on their website, it is a reference, a research, and a teaching tool conceived for students and scholars of art history. The timeline is structured with four components: essays, works of art, chronologies and keywords. For the purpose of this work, the chronologies are the most interesting part. It provides a linear outline of art history by geographical region. The user is immediately required to select a country; subsequently, he has a choice of dozens of chronologies, which can be additionally filtered by time range. This is quite a tedious and annoying process. Each chronology covers up to ten representative artworks, which means that for example the period from 1900 to present in central Europe is represented by only ten works of art. Further, there is history timeline of included countries, a brief textual summary about the chronology and more than one hundred of key events sorted by the year.

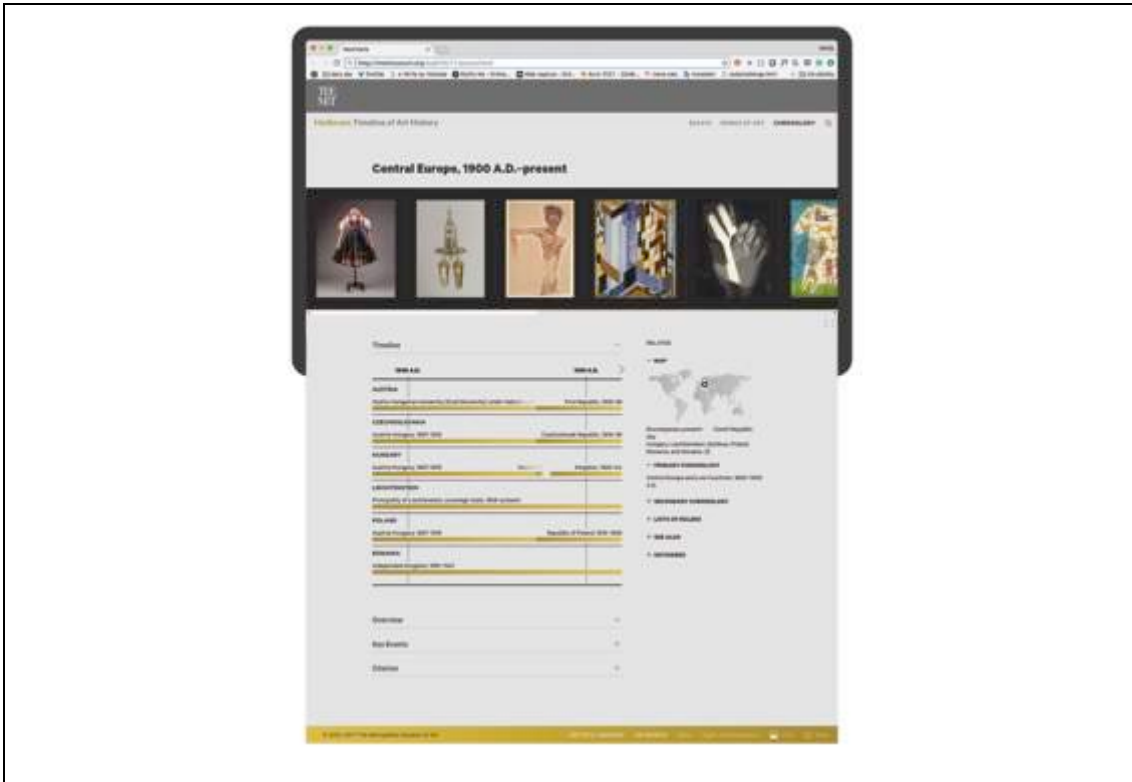


Figure 2. Heilbrunn Timeline of Art History

*Google Arts & Culture Experiments* are something between art and technology. It is created by the team of software engineers, artists and creative coders at the *Google Cultural Institute's Lab*. They are aimed at discovering new ways people can explore art and browse collections of partner museums from around the world. Whether it is interactive virtual space created by machine learning algorithms, which organize artworks based on its visual similarity, or a system of image classification, which help identify artworks by thousands of unique tags, without any metadata. The project *X Degrees of Separation* aims to connect any two artworks by finding hidden pathways between them. Computer vision algorithm can create unexpected connections, based on visual similarities between two pieces of art: be it a sculpture, a drawing, a painting, fashion or architecture.

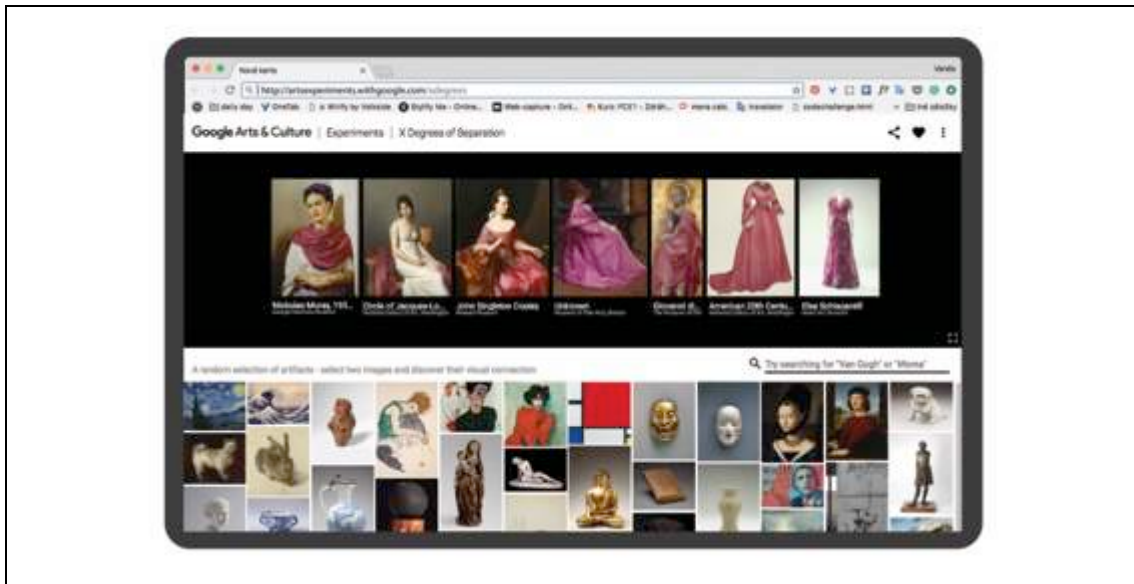


Figure 3. Google Arts & Culture Experiments – X Degrees of Separation

### 1.2.1. A few words to the popularization of the science

The word „popularization“ is defined as a relationship between scientists and society, and among others, it focuses on how to explain science in an accessible language. After all, securing a human literacy is one of the reasons for the popularization of the scientific subject. It is not a superficial solution, and it is not intended for those, who want to become experts in the field. More than that, popularized subject can serve as an introduction to the issue, though it can inspire further and deeper study.

By popularization, everyone without scientific education can understand more complex issues. One way how to achieve this is to liken the given issue with an object or an event familiar to the reader. The content itself is simplified and reduced.

There are three types of instances to discuss science: scientific discussion among peers, epistemological discussion among philosophers and public discussion among citizens. In the last group, it is often one-way communication without a feedback. So thus science finds all means of communication to find their way to the viewer or reader. The first popularization attempts are dated back to 1799 when The Royal Institute in London was established. It is an organization devoted to scientific education and research. The organization used to engage public in practical lectures accompanied by an experiment, many of which continue today. Moreover, shortly thereafter it focused on children's audience. Since that time, the range of popularization media has grown. Let's mention popularization books and magazines, conference lectures, television documentary, radio, new and technologically advanced museums and especially

the medium of internet. Each of these options has its distinctive qualities. In lectures such as at the TED conferences, an audience is in the immediate contact with the scientist, at science museums, visitors have the exhibits and interactive objects available, on the other hand, radio conjures up images, stimulate the imagination and increase attention. A video is another great way to explain things, as it can combine images, videos, animations, text, voices and also has a narrative character. The Youtube channel is becoming popular space where to post such a video and even the world's biggest science organizations have adopted this trend. It is clear that new digital world have opened up new opportunities in teaching.

In many respects, when we try to convey some greater message, it is better to use cartoon images compared to high detailed photographs. Because of the level of detail and number of visual clues, we cannot see "a bigger picture". By using cartoons we can eliminate our inner criticizing instinct. Of course, this is appropriate when the visual explanation is intended for a general audience, rather than for a specialist. Thus, comix are another way of popularization of art history. It uses reduced and symbolic narrative; moreover its visual language is reader-friendly and attractive. *History Notebooks: Toufar* is a great example from Czechia. This is an attempt to bring a story of the parishioner tortured by State Security. Comix, the facsimile of historical resources and the game concept of searching for the traces of the past are joined together to attract not only child but an adult audience too. The story of Josef Toufar is also processed from various perspectives within the online application *History 1950*.



Figure 4. History notebooks: Toufar

Next area, where the art history meets the popularization is at the art museum. Development of digital technologies, such as projection mapping, touchscreens, MultiTaction screens, kinetics, transparent LCD and many more has allowed exhibitions to engage all senses. Visitors are encouraged and want to learn more about the history. *The Cleveland Museum of Art* with an interactive *Gallery One* completely transformed the art museum experience. Visitors may use iPad apps to deepen their experience, create art together through hands-on activities or

interactive technology stations, and to discover interactive, multi-touch screens. One of the interactive installations titled *How Do Our Bodies Inspires Art?* encourages visitors to connect actively. By striking a pose or making a face, they can investigate the museum's collection.



Figure 5. The Cleveland Museum of Art – Gallery One

### 1.2.2. Digital art history projects in the world

The number of projects that do not follow repetitive patterns but innovate and try to come up with their own innovative solutions is growing. *The Digital Art History Lab* seeks to provide art historians with digital tools and data amassed by the *Frick Art Reference Library*. This library is part of *The Frick Collection Museum*, which is located in New York City and today it is one of the leading institutions for research in the field of art history. It provides data access to the public in an online catalog. It also provides a great collection of resources related to digital art history, links to digital art history projects, and key scholarship in digital humanities. This bibliography is designed to be a springboard for further research and is constantly being updated.

*The Wired! Lab for Digital Art History & Visual Culture* is one of the learning communities that explores ways of thinking about visual and material culture through digital technologies. It explores the potential of digital visualization technologies and tries to create new narratives about works of art and architecture to engage the public in new ways. The lab is located in the *Art, Art History & Visual Studies Department* at *Duke University*.

The Art Genome Project is the classification system and technological framework that powers Artsy, which is one of the biggest online art history databases. It features the world's leading galleries, museum collections, foundations, artist estates, art fairs, and benefit auctions, all in one place. Although it takes a more focused approach to classification of art, it can give us a better understanding of the fact that art history is not only learned by chronological order. This growing online database covers over 1,000 characteristics, or „genes“ as they call them. Thanks to what, artworks can be browsed by subject matters, media, techniques, styles, movements, and geographic regions.

### 1.2.1. Digital art history projects in Czechia

*The Institute for the Study of Totalitarian Regimes* scientifically examines the periods of Nazi occupation and communist domination. Unlike other scientific institutions, it is intensively engaged in popularization and education. It cooperates with many Czech and foreign schools, aims to respond to current trends in education and greatly contributes to the modernization of teaching history. Part of its methodology is support of project teaching at schools of all levels. The institute tries to achieve this by creating new methodologies and seminars for teachers, with the development of new educational applications and DVDs. *Dejepis21.cz* is an educational portal, which collects description of methods, its forms, and outputs of the institute. Section Database – Normalisation contains the largest material set. Thanks to the permeability of thematic sections, such as culture, politics or events, the user can approach historical issues from different perspectives. Individual chapters and subchapters contain mostly movie demos, annotations, questions and commentary. The structure of this site is simple, but in visual aspects, the design is conventional, outdated and not really elaborated.

A project *Socialism Realised* aims to help foreign students and teachers to better understand life in communist Czechoslovakia. The portal utilizes memorials and other multimedia sources, such as movie clips or photographs. These authentic materials speak clearly and directly about people's experiences, feelings, and problems they faced in the past. Each document is accompanied by questions and comments. In a homepage of the website, there is a fullscreen video in the background accompanied by a title of the project. What follows below the fold of the screen is a short description with illustrated infographic, which is, unfortunately, not entirely understandable. The main way to use the website is through a catalog, which organizes content according to two principles – perspective and era. The user can choose from four different perspectives, such as ideology, memory, oppression or personal story, or he can browse by seven eras. Whole content consists of 38 materials, while each one has the form of a card represented by a title, is accompanied by a descriptive image, two icons



depicting era and perspective category. The card also includes a small label that illustrates the type of the material, whether it is text, an image or a video.



Figure 6. *Socialism Realised*

In Czechia, a lot of interactive games were also created. The *Game Fates and Careers* was created within the framework of educational project *Touch the 20th Century!*. The gaming process consists of selecting the character the user wants to play and of decision-making processes in the story, at the end of which, users can print their own biography and share their fate via Facebook. Another education tool *Czechoslovakia 38-89* is a series of educational simulations combining elements of interactive comic and computer games. The simulation is intended for the use in classroom lessons. Computer game *Czechoslovakia 38-89: Assassination* has been awarded as the *Game of the Year 2015* in the category *Best Debut in the Czech gaming*.

### 1.3. Comparative review of teaching art history at design schools

As a student of design, who at the end of study must pass the state final examination from art history, though it is not their main subject, I was interested in what the situation was elsewhere. Not only on the basis of interest but also a possible inspiration I decided to map out the situation at schools in the Czechia. For an even better overview, it led me to do a small survey also at the best design schools abroad. Because students of art from departments of art history are not a target audience, these schools are not mapped. Another reason why only design schools are compared is because the project was formerly dedicated only to students of the school I am studying at.



Figure 7-8 illustrate, that art and cultural history is usually taught only at departments of art history. In selected schools, the only history classes considered in school syllabus are related to the focus of the department. Typically it is history of graphic design, an overview of optical media and aesthetic movements covering past two centuries. Nevertheless, at the *University of Illinois at Chicago*, art history classes are included, although students do not have to pass the state final examination in this subject.

School	Department	Art history classes	SFE
Parson school of design	Art, Media and Technology Department	NO	NO
Rhode Island of design	Department of Graphic Design	NO	NO
Institute of Design in Chicago		NO	NO
University of California	Department of Design Media Arts	NO	NO
University of Illinois at Chicago	School of Art and Design	YES	NO

Figure 7. Art history classes at design school abroad

Compared to Czechia and Slovak, it is just the other way round.

Acronym	School	Department	Art history classes	SFE
VUT FAVU	Brno University of Technology	Faculty of Fine Arts: Graphic Design	YES	YES
UMPRUM	Academy of Arts Architecture & Design in Prague	Department of Graphic Arts	YES	YES
UIEP FAD	Jan Evangelista Purkyně University in Ústí nad Labem	Faculty of Art and Design: Department of Visual Commu	YES	NO
ZČU	University of West Bohemia	Ladislav Sutnar Faculty of Design and Art	YES	YES
TUKE	The Technical University of Košice	Faculty of Arts	YES	YES

Figure 8. Art history classes at the Czech and Slovak design schools

## 2. EDUCATION AND NEW MEDIA

A rapid development of ICT, globalisation, a shift from the collective to the individuals, informal education and life-long learning changed the meaning of the word “learning”.

### 2.1. Learning and study systems

Especially adults have difficulties to focus on learning because a lot of them are often not in control of everyday circumstances. Following these strategies can help to improve learner receptiveness. Without being emotionally and intellectually ready to receive the content, it is very unlikely that the learning is going to have any benefit. So how to overall ensure this?

Let us start by saying why the topic is important to a reader and how it can help him. If something does not have a purpose, human’s mind will simply erase it from the memory. Another great way to enhance learning is by making the subject emotional. Emotions increase our perception and activate our memory cells.

As has been said, knowledge is obtainable only in the case an individual is able to put particular standalone pieces of information together. When new information is perceived, its meaning is assigned and subsequently tied into preexisting knowledge. Thereby, it is committed to memory and becomes a part of the person’s cognition. Most essential step to follow is to avoid cognitive overload.

Online learner’s mind can only hold a limited amount of information due to the capacity of working memory. This can be done by building knowledge gradually and absorbing data in order of difficulty. Thus, avoiding overwhelming data content with obscure details will facilitate learning process. Due to another well-known fact in educational psychology, we know that human’s mind creates connections between two components close to each other. Because of that, there should always be sufficient white space between unrelated content, to prevent confusion of the user. Well-structured and organized content goes hand in hand. If new ideas and concepts do not seem to be relevant or valuable to the reader, his brain does not take notice. Thus improving learning experience by doing so in context definitely leads to better results.

Based on emotionally-centered eLearning experience approach, it is clear, that an individual is more likely to remember the enjoyable and funny observation of facts, because of favorable emotions. Incorporating a story is one of the most effective and emotionally-gripping ways. Another option is to make an online app more personal. By including real life experiences, we can make the subject more real and alive.

There are a number of effective study systems, which help to learn, such as speed reading techniques or active learning. Because of students are used to study in

a way they did in elementary and high school, in most cases they have never been exposed to other processes of learning. They just do not know how else to memorize. In this regard, most likely they make mistakes and do not even know about it. Those, who were learning by „rote“, tend to jump right into reading a study material, its paragraphs, and detailed sections. Unfortunately, by doing so, it is much harder to place the matter into memory in an orderly way and what is more importantly, to preserve it for a long time. Although it takes a bit of extra time, in the end, it saves everyone's time, regardless of learning environment. It does not matter if it is school, work or self-study.

SQ3R is one of the oldest and best-known study systems. An acronym „SQ3R“ stands for each step of the process. Those are a survey, question, read, recite and review. In the first step, it is necessary to understand the framework of the information, without digging too deep. If possible, it's worthy to read the preface, table of contents, the chapter titles with summaries and all the main headings within them. Questioning is a definitely good way how to proceed. Not coincidentally it is involved in many other study methods. Asking the question about a concerned topic, even before learning it, keeps the learner focused and engaged. Reciting is an interesting part of this method. By reviewing loudly, even better if it is to another person, a one can boost his memory by 25%, and even more. It is recommended to do the review step several times, if possible.

Use of memory processes helps to enhance the ability to learn. They help to organize individual's natural memory and create mental cues for retrieving information. Dr. Kenneth Higbee claims that the storage capacity of our memories is unlimited and the only reason why we cannot find the particular one, lies in the disorganization and clutter of the rest. They are useful when remembering names, dates, foreign languages, definitions but also any other features.

Due to the fact that most people can remember images better than words, image-based techniques are great. They are in use for over 2,000 years and there are plenty of them. Keyword method is exemplary. It is great for linking two pieces of information together. The essence of this technique lies in the creation of a substitute word, converted from the sound of the original one, and subsequent visualisation. Creation of vivid mental image is fundamental to build a strong mental connection to the new information. Because of the fact, that ordinary things are forgettable, the more extraordinary, the better. Exaggerating or using substitution for individual parts or animating makes images more memorable. Douglas Jobses shares on his website several helpful tips on how to create these mental images.[7] It is whether by using direct replacement images, including a symbol to represent a subject matter or by a method „Who does it remind you off?“. Linking belongs among other interesting memory methods. In order to facilitate to remember long lists and other reading material, we need to associate the first two items with each other using a representative memorable image.

After that, we need to create the second link from the other two items, to link the second item with the third and so on. A great example of this method can be seen in the documentary titled „BBC - Get Smart“. In the video, the memory champion Andi Bell explains this method and shows how to remember thirty random words in 5 minutes, in order.[11]



Figure 9. Andi Bell explains the 'link method' memory technique

The method of Loci, used in the time of Cicero, is perhaps the oldest memory system. This method links information to places we already know. It can be a route or an interior of a building. This imaginary space is called Memory palace. As with other methods, we can only succeed by memorizing images assigned to information, not by an abstract text. On the theme of art history, where a lot of dates occurs, there is another appropriate technique called phonetic-number memory method. Having said that, all the mentioned methods are useful because they help to create mental hooks, which allow us to better preserve and handle with new, hardly remembered facts.

## 2.2. Computers in education

It is proven, that humans have difficulties in dealing with a large amount of data because its complexity exceeds human capability. Decades ago, we were collecting data, but today, in information-rich age, we need to be able to search, recognize, eliminate, and sort it out.

### 2.2.1. A brief history

„The computer and television have literally moved us into the world of pattern recognition and out of the world of mere data collection“

– Marshall McLuhan

The era of computers in education is more than 35 years old. What follows is a brief sequence of facts, which form the way we live and learn today.

An exponentially growing volume of new information in the scientific industry made the basic knowledge obsolete, as the data became so easily accessible. This also led to a formation of new concepts, theories, and disciplines, which changed the way we look for and use them. The emergence of cognitive science permanently changed the meaning of „learning“. It focuses on development of thinking and problem-solving methods. Thanks to communication invention such as television, radio or the digital computer, schools were no longer the only place, where to gain knowledge. New educational demands have also contributed to rethinking of education. Initial use of computers in learning industry was firstly adopted at universities and primarily found in scientific disciplines. In the early seventies, a significant pioneer in computer-assisted instruction, Seymour Papert has developed a new programming language LOGO which was designed to teach children mathematics. „The role of the teacher is to create conditions for inventions rather than provide ready-made knowledge,“ he pronounced. This different approach has become widely used and popular. Nevertheless, the *National Science Foundation* brought really big progress in the 1960s. In order to make computers available, they supported students and institutions of higher education. „By 1975, 55% of the schools had access and 23% were using computers primarily for instruction.“ [7]

The situation has improved even more when personal computers have begun to replace expensive and luxury ones. In 1976 an American technology company Apple is founded, and a year later it presents first highly successful mass-produced personal computer. Because of the fact, that visual symbols provide a better understanding on the contrary to complexity and limits of written word, the development of computer graphics had also made a shift in computer learning. Another significant milestone in computer education was when World Wide Web was launched in 1991. Over time, the education has become a flexible and even a flexitime matter. Many academic degrees can be earned entirely through the use of an Internet-connected computer. Nowadays, artificial intelligence, applications, parallel processing, nanotechnology and many others are being developed to facilitate education. In this approach, especially virtual reality provides an entirely new way of learning. It is all about making understanding of things easier, more intuitive and enhancing a deeper experience.

### **2.2.2. Learning with interactive multimedia**

„Wealth of up-to-date information available along with nonlinear nature, interactivity and multimedia presentation can support discovery-oriented strategies“. [8]

Development of an interactive multimedia course is actually a demanding task. Content providers, multimedia developers together with graphic and instructional designers are involved in the process. Multimedia are a combination of multiple media elements such as images, videos, audio or animations and have many benefits for the user. In the book *Interactive Multimedia in Education and Training* authors recall seven principles of multimedia design, which are based on a review of their research. By application of the multimedia learning principles discussed below individuals are able to retain and transform information better. [8]

1. Multimedia principle: the use of pictures and words together rather than alone.
2. Modality principle: the use of auditory narration with animation, compared to on-screen text and animation.
3. Redundancy principle: states that the use of on-screen text, narration and also animation is redundant.
4. Coherence principle: recommends avoiding the use of unknown, extraneous elements.
5. Signalling principle: instructional environment involves cues or signals that guide one's attention and accompany.
6. Spatial contiguity principle: relevant images and words are close to each other.
7. Temporal contiguity principle: relevant images and words are accompanied simultaneously.
8. Segmentation principle: suggests the use of short user-controlled segments rather than one unbroken whole.
9. Pre-training principle: names and characteristics of the main concepts are known.
10. Personalization principle: style of language used is rather conversational than formal.
11. Voice principle: if the voice is used in narration, it should be friendly and human, rather than a machine voice.
12. Image principle: addition of speaker's image in a multimedia presentation to the screen does not necessarily lead to better learning.

In the context of the use of new communication technologies, new problems have occurred. The Internet, which plays a significant role in a way we learn today, has its advantages but disadvantages too. For instance, hypertext links first appear; they encourage learners to search for information, but they can also lead to unstructured, unsystematic and disordered process. Some of the other problems in this matter are:

- getting lost in cyberspace
- lack of structure for less-experienced or less well-disciplined users

- potential for non-interactive one-way presentations or ones with poor design
- a time-consuming process requiring more time to master

In order to avoid this, a text containing hyperlinks would be well-structured and in this way limit user's choices.

Richard E. Mayer concluded that there were five actions students need to perform for successful learning:

- select a relevant text
- select relevant images
- organize the selected words into a coherent verbal representation
- organize selected images into a coherent visual representation
- integrate the visual and verbal representation with prior knowledge

He also suggests how to present multimedia content for better retention. For example, words should be accompanied by images simultaneously and close to each other. Unnecessary information should be omitted or used later when being more important and coherent to the relative topic. Also eliminating redundant material results in better learning performance.

Already mentioned research *Teaching contemporary history* also examines the situation of teaching art history in the Czechia in the light of new media. The main findings include:

- the three most used sources of historical consciousness influencing the ideas of the past are media, such as television and film, the internet, and family tradition
- teachers would like to teach more with the use of memorials, documentary, archival materials, and radio programs. From the tools, they would like to use more interactive web presentations, DVD, and the real period materials.
- watching movies, testimony of the witness, visiting an important place or museum belongs to the ways, which motivate students for the interest in the past, contrary to reading professional literature or traditional teacher's interpretation

Based on the research report, it is possible to convince oneself that teaching nowadays is significantly different. It also refutes the myth that teachers are not willing to innovate their teaching methods or are afraid of teaching with the help of digital tools.

### 2.2.3. Gamification

Any web product that makes users happier, smarter or teaches them new skills is gamified. Teachers have always been looking for ways to engage and activate pupils, so it was there long before the introduction of the term. However, a gamification, as we know it today, is firmly tied to technology and design. It is particularly effective because of the fact that it can bring emotions into the learning process and encourage students to become more involved. It utilizes the knowledge of what people like, motivates them to absorb information about their interests, and how they work in communities. In the field of education, we distinguish structural and content gamification. The first one relates directly to the form of the educational course. It includes elements of a computer game environment such as a reward system, progress recording or feedback. The second one concerns the actual content of the text, which can be connected to the story. When transferring content into a context of the game, basic principles of gamification should be met:

- a clear explanation, why the user should be interested in the topic
- an intuitive and accessible beginning of the course
- a progressive dosing of content according to its complexity
- targeted incorporation of interesting elements and challenges
- logical framework and context
- space for user self-discovery by making choices
- simple and understandable rules
- elements of social collaboration
- a visual overview of the acquired knowledge
- feedback, that motivates
- evokes emotions and contains fun aspects
- alternation of extensiveness and difficulty
- contains a clue
- smooth cross-connection of all elements



## **II. PRACTICAL PART**

### 3. PRACTICAL ANALYSIS

#### 3.1. Timelines

A timeline is a method for displaying or seeing time. It is a line drawn on a suitable scale of days, months, years, centuries, or eons, on which key events or periods are marked in the sequence of their occurrence. They help with the understanding of the order of events, as they show chronological transformations and relationship between events. Its visual framework provides a way to tell a story and support reading comprehension. The framework is visually rich and can include images, texts, labels, dates, videos, sounds, call-outs, references and much more. Thus, undoubtedly timelines have great educational purposes, as the information is better learned visually than when perceived only in pure text form. Structuring time with timelines helps to develop a long-range understanding. Events can be divided into multiple parallel timelines within their own theme or category, can be linear or nonlinear, static or interactive, or can entirely differentiate in the layout. The goal of a storyteller is to choose the most appropriate type of timeline, which will present information in an engaging way and will be interpretable by the audience.

##### 3.1.1. Classification

Data-storytellers use a spectrum of techniques to execute the design of data-storytelling tools. The design of timeline is defined by representation, scale, and layout dimension. Representation is the most noticeable one, for its guiding visual metaphor aspect. It is the overall form of the time path. Authors from design survey *Timelines Revisited: A Design Space and Considerations for Expressive Storytelling* identified five timeline representations: linear, radial, grid, spiral and arbitrary. Linear Timeline is best for showcasing events within one subject in a time frame. It uses a linear scale, while a unit of distance is equal to a set amount of time. Displayed items can be written horizontally or vertically. In past, timelines used mostly a linear scale and were drawn or printed on paper. Nowadays, computers allow the use of different layers, interactive interface, and cross-reference. On the other hand, radial representations are appropriate for presenting the periodic nature of time. Grid representations, mostly related to standard month-week-day calendar, present cyclical nature of time. Spiral and arbitrary approaches are often playful, amusing and aesthetically appealing. Next dimension, the scale of a timeline, reflects the temporal relationships on the display. The survey mentioned above also identifies five timeline scales: chronological, relative, logarithmic, sequential and a sequential+interim duration. It also shows that the first one is the most common. In relative scale, events are positioned with respect to a common baseline event at time zero, rather than to absolute dates. Logarithmic scale emphasizes either early or

recent events, in a sequential scale, events are often equally spaced and don't correspond to chronological distances. The last scale approach often deals with large chronological scope and non-uniform distribution of events in hybrid combination of the sequential and chronological extent. The third dimension – a layout, can communicate relations between groups of events. Unified timelines are single ones, a faceted timeline is one that has been partitioned according to some categorical attribute into multiple ones, and a segmented timeline is partitioned according to a meaningful temporal division of time. A faceted + segmented timeline is the combination of the last two. With a combination of representation, scale, layout and a concept, there is a number of various timeline designs. What follows is a summary of some of them, explained in more detail.

### **Logarithmic timeline**

It is best used when dealing with a large range of quantities and allows us to show sparse beginning of history to the detailed recent events. It uses logarithmic scale, rather than linear, which is based on orders of magnitude. This scale actually never gets to zero. The idea of this principle goes back to mid 40s , when cyberneticist Heinz von Foerster used first known timeline *Histomap of Evolution* to propose that memories naturally fade in an exponential manner. He stated: *„As we travel forward in geological time the more complex is the evolution of life forms and the more are the changes to be recorded. Further, the most recent periods of evolution hold the most interest for us. We need therefore increasingly more space for our outline the nearer we approach modern times, and the logarithmic scale fulfils just this condition without any break in the continuity.“* Detailed logarithmic table is arranged as a vertical table beginning from „now“ and progressing backwards. Rows are represented by logarithmic notation in terms of „years ago“, duration or period and by representative events, inventions or other historical development.

### **Living graph**

It is similar to the first one mentioned. Likewise, it shows the progression of time. The main benefit of this timeline is that it illustrates the impact of each event by enhancing the positive events and the contrary for the negative events. As a living graph of the allies in the World War II from Figure 10 shows, failures and successes that are clearly distinguished by their color and also by their location.

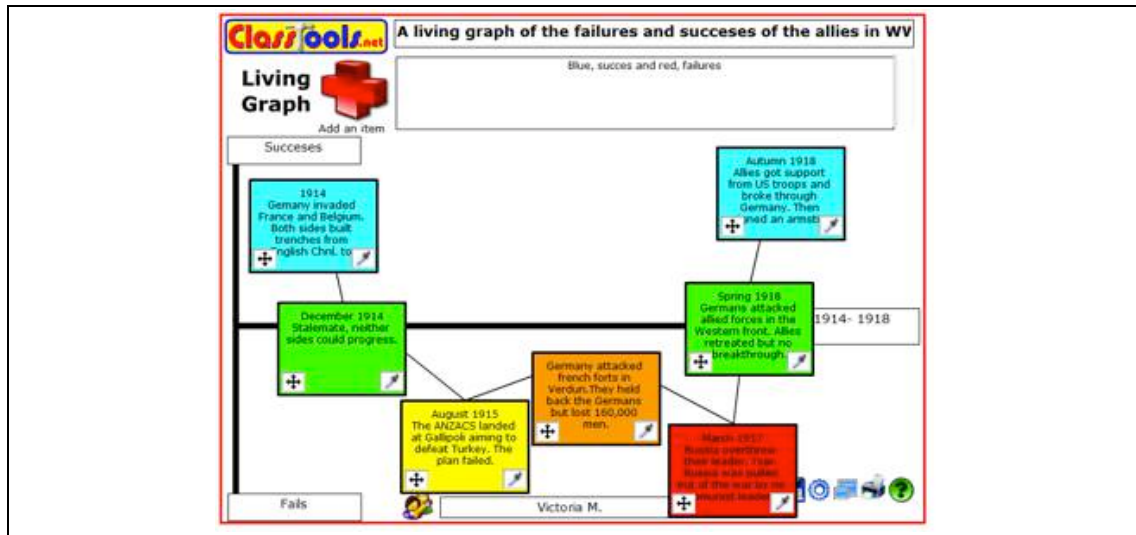


Figure 10. Example of living graph

### Synchronoptic view

It is particularly useful to depict historical events. Multiple events happened at the same time in different places or cultures can be displayed at once. This helps us to comprehend how particular events interacted between seemingly unrelated areas. So, it has great educational purposes. It goes back to mid-18th century when Jacques Barbeu-Dubourg first developed synchronoptic visualization of time in his timeline called *Carte Chronographique*. It is 6.5 meters long chart, representing 6,500 years of history, where relevant events in separated categories are represented vertically on a horizontal timeline.

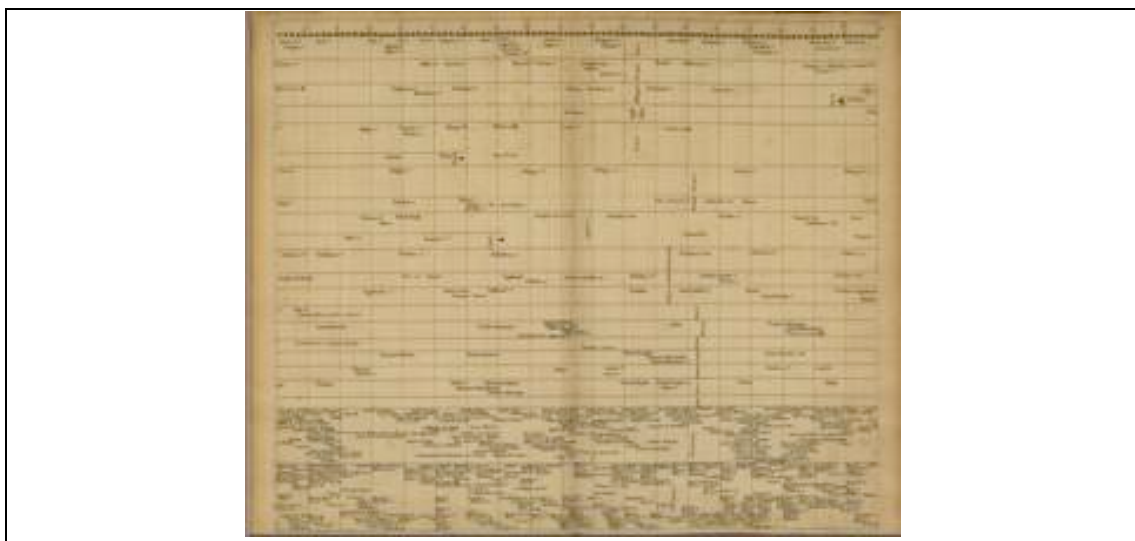


Figure 11. Carte Chronographique

### Comparative timeline

As the name suggest this one is best for showcasing more subjects within a time frame, but it might compare events in two or more countries as well. It provides a good picture of time. This type of visualization grows in popularity. Thanks to digital media, we can perceive time no longer as a static image. Nowadays, we can interact with digital tools through its interface and thus in this type of timeline, the observer is no longer viewer but becomes a user. They are able to control it through its interface and can go quickly through larger leaps or centuries. Additional information is provided by various call-outs. There is a lot of web-based software for creating interactive timelines, such as for example Tiki-Toki. Here, the user can choose between 3D or 2D mode, filter categories of events, search them and much more.



Figure 12. Tikit-Toki: web-based software for creating interactive timelines

A great example of this timeline is *The Museum of the World*. The project was created on the basis of cooperation between the British Museum and Google Cultural Institute. It is an interactive experience through time, continents and cultures, featuring some of the fascinating objects in human history.



Figure 13. The Museum of the World website

**List timeline**

With the popularity of Twitter and its approach to list events, this method has gained popularity. Unlike most, this approach is effective in its form, easy to produce and comprehend. Text-based lists accompanied by a thumbnail are arranged in vertical format. World history project is a good example of this approach.

**Granular timeline**

This one explains a particular event in a detailed manner. A linear timeline is chunked into color blocks. These shapes represent a different aspect of the event, for example its longitude, and are distinguished by a color. This color code is explained in simple reference key. As with other timelines, there should be call-out providing a detailed transcript or other relevant links.

**Mixed infographic timeline**

A big amount of different pieces of information related to timeline can be added through different graphical types. Mixed infographic timeline allows the use of mixed graphics, such as graphs, icons or illustrations. Though this type of a timeline includes layers of information, there is a fine line between legibility and distraction.

**Other timelines**

Here we can include for example 3D spiral timelines, which are often used for representing a geological time. As they taper off into the void, it is ideal for extensive periods, as they emphasize recent events. Further, for example, timelines with all sorts of analogies, such as for instance game boards. Chaotic timelines are used especially when dealing with an extensive period of time and a huge amount of data. Instead of a one-way path, curvy and chaotic paths take over as the trajectories of time.

**3.1.2. Visualization and storytelling**

Infographics have become a permanent part of educational platforms, because of the continued need to communicate content quickly. Good starting point for creating a successful infographic is a high-quality source of driven data. Otherwise, there is a possibility of misleading the user. The next important step consists of cutting the amount of data. There is no need to convey every potential subtopic, on the contrary, this should avoid overdosing on data. Thus, data are pruned based on the story we want to tell. For a better understanding and visual storytelling, each infographic should implement symbols related to the subject matter. After all, according to Professor Shonali Burke, human needs only 30-40 seconds to read it, so making provision of visual aid gives the audience a quick idea of the content. An inclusion of reference information, cross connection for

resultant exploration and detailed information adds to its credibility. However, it showed up that the most important feature of dealing with narrative is integration of reference that links the source information.

For impressive visual storytelling, it is good to find a metaphor that is related to the subject matter, whether it is a symbol or another creative visual clue that will give the audience the idea of the content, without even having to read it. It is even more successful if we incorporate emotions into process.

A simple timeline may depict events in the order in which they occurred. To indicate how long the events lasted and whether they overlapped in time is a more precise way of depiction. The most typical representation of an event is by using some graphical mark such as line, icon, dots, arcs or polygons. However, to make it comprehensible, the viewer needs to understand what is displayed. Thus, novel visual language always follows its conventional language. To sum it up, in its most basic form, each timeline contains a minimum of following four visual elements:

- a way to depict the path of time
- the depiction of points and segments of time
- a method of displaying an event
- text labels and call-outs

Each time visualization is unique for its choice of colors, iconography, imagery and shapes. The use of animated transitions is becoming an emerging trend in data-driven storytelling. They are an effective way to preserve the context. They should serve a few key functions when it comes to design: visually stimulates users and create a strong impression, show users what to do or how to interact with design, tell a story using spatial relationships and movement, communicates personality or tone and also contributes to overall user delight.

Recommendations include, for example, the use of firm dates instead of date ranges, as it is much easier for the reader to understand or a division of greater extent into smaller digestible chunks. To any level of innovativeness, colors should be used wisely; texts should be kept short and concise. There should always be enough white space left. Another thing to keep in mind is that the excessive decoration of icons and illustrations shouldn't be the center of the design. After all, the reader needs to focus on dates and facts.

### **3.2. Information architecture**

„On the Web, if a site is difficult to use, most people will leave.,,  
—Jakob Nielsen

Since the project is going to be a web solution, it is important to understand and extend the knowledge in the field of information architecture. Its definition reads as follows:

1. The structural design of shared information environments.
2. The combination of organization, labeling, search, and navigation systems within websites and intranets.
3. The art and science of shaping information products and experiences to support usability and findability.
4. An emerging discipline and community of practice focused on bringing principles of design and architecture to the digital landscape.

Good structuring of the information is all about an appropriate level of its granularity. This refers to the coarseness of information chunks such as article, paragraph or sentence. The relation between each other is next important stage. Good organizing involves grouping those information „atoms“ into relevant and distinctive categories. Also their naming by appropriate words plays a very important role. This is called labeling. Findability of information, the user is searching for, is a critical factor for successful user-centred design.

Good information architecture design is informed by these three areas: context, content, and users. Context is about understanding the business goals, funding, politics, culture, technology, resources and constraints behind the website. Content is the whole current or possible future volume of content: documents, data types, content objects, and structure. The last area consists of learning about the major audience, their tasks, needs, experience and information-seeking behaviors.

### **3.2.1. User needs and behaviors**

Website users search for information in various ways. They ask at chats or through email, browse from link to link or search by entering queries in search systems. Also, there is a number of information needs. The most common and the most problematic is a „Too-simple model“. It consists of user's input and, after some searching or browsing, from the following input. This is problematic because it matches only the audience which exactly knows what it is looking for. Unfortunately, that is usually not the case. Opposite to this „Known-item seeking“ model, there is an „Exploratory seeking“ with no singular result. In „Exhaustive research“ the user wants to find everything and then when he need to find some information again, we are talking about „Re-finding“. In other words, there is no single suitable information model, which matches everyone's needs. Based on the target audience, websites make use of some established models of behavior. The so-called „berry-picking“ is when the user, in the process of seeking, modifies his information request, as he learns more about the demand. „Pearl-growing“ allows users to link to a similar document, once they came across to a document, which perfectly matched their needs. Next, „Two-step“ model is



appropriate when users are used to firstly browse through the directory and then look for information within the subcategories. A typical example of this is the menu on the web.

### 3.2.2. Basic principles

Information architecture has many forms. Organization, navigation, searching and labeling systems are there to help us to navigate through the site. So-called „top-down architecture“ answers the user's major information needs. When the users land a website, the most common questions they have, include: "Where am I?", "How do I search for what I am looking for?", "What's available on this site?", or "How can I contact a human?". What is often forgotten, is that landing a homepage is not the only way a website gets its visitors. The users often find themselves deep in the site structure, either by using web-wide search tools like Google or by clicking through ads. Once there, without learning its top-down architecture, they need to be aware of where they are, what is the content here and how they can navigate through the site from here. Information architecture components include browsing aids, such as breadcrumb, subsites, tag clouds, site indices, sitemaps and related links, or search aids that allow an entry of a user-defined query. Additionally, there are components included in the content such as headings, embedded links, chapters or identifiers and also invisible components. These are for example retrieval algorithms, which are manifested completely in the background of the site. On the contrary, organization schemes facilitate access to information, by dividing it into well-defined sections. The primary and frequently used exact organization schemes are: alphabetical, chronological and geographical. However, ambiguous organizational schemes can be often more useful. Nevertheless, maintaining these may require dedicated staff with subject matter expertise. Also categorization by a subject or topic, task, audience or metaphor belong among the other most useful approaches of organization. If some hybrid schemes blend elements of multiple schemes, it is beneficial to present them separately. This provides flexibility without causing confusion.

Organization structure plays an important role in any website. It defines the primary ways in which users can navigate. Well-designed hierarchy or taxonomy is the foundation of all good information architectures and is a good place to start the design process. When designing the taxonomies the balance between its breadth and depth it should be considered. Figure 14 illustrates two examples of hierarchy, from which both are incorrect. In the first case, the user is faced with six clicks to reach the content, contrary to the second case, when the user must choose from ten categories and thus is faced with too many options with the lack of content inside.

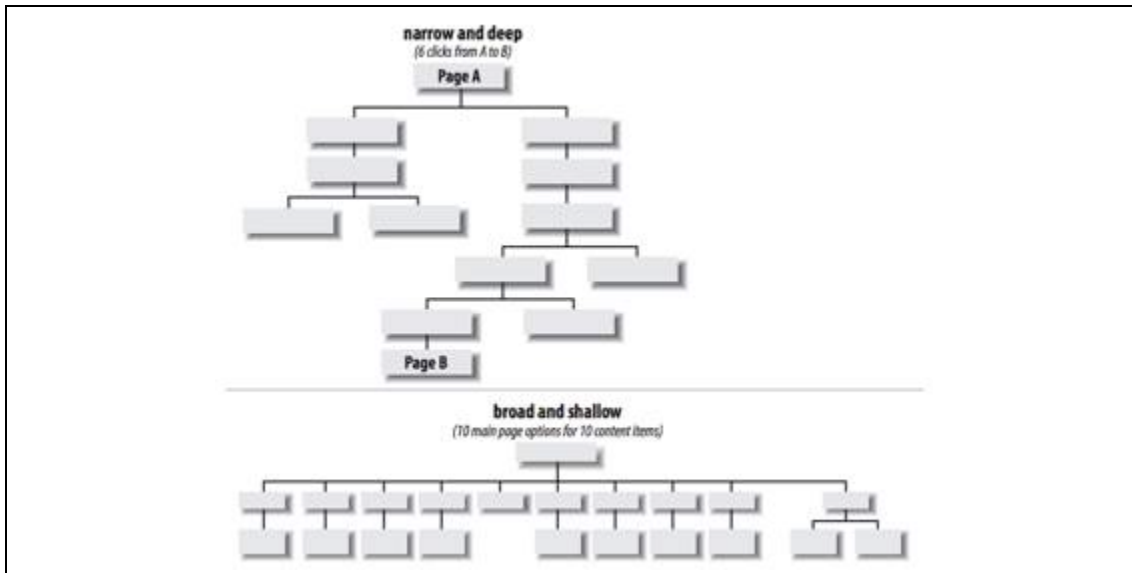


Figure 14. Taxonomy of the information architecture (image courtesy of <https://goo.gl/AfSVpE>)

In hypertext systems, text, data, image, video and audio chunks are connected hierarchically or nonhierarchically via links in a free network of relationships. On the one hand, this scheme provides architects with great flexibility; on the other hand, because of the potential for complexity, it can lead to the user's confusion and losing. The last, system of content organization, allows user for collaborative categorization with free tagging.

Navigation systems provide different ways of accessing the information. Embedded systems help to answer the user's question about where they are and where to go. Global, local and contextual navigation are the most common layouts. Besides that, there are also supplemental navigation systems such as sitemaps, indexes or guides. For many reasons, when designing navigation systems, context is the most important thing to bear in mind. It means, that the user has always the need to know where he is and where the page will lead him next.

### 3.2.3. Criteria for educational websites

Robert Stradling in his book *Teaching European history of the twentieth century* discusses and evaluates different methods of learning history. Besides some important things and insights about the problematic of learning with new media, he sets out helpful criteria of a successful educational website. In chapter *Evaluation of new information technologies*, he identifies these criteria according to purpose, source, access, orientation, overall appearance and content. Need to be mentioned, that the following selected points are written with the intention to teach modern art in the 14-18 years age group of students.

**By purpose**

- is a purpose for which the website was created clearly set somewhere?
- Is the target audience of the website mentioned somewhere?
- Which elements of the page can be used for teaching according to a school's curriculum?
- Is the page appropriate to the age of target audience?
- Is the page worthy, in term of amount of useful information it contains?

**By source**

- Who is the author of the website?
- Is this author expert on the issue, a representative of a specialized institution or do they belong to any organization?
- Does the selected domain tell us about the value of the site?
- Is the site sponsored by any group, institution, company or government? Does this fact increase or decrease the credibility of the website?
- Is advertising included here? Does it detract from the credibility? Is it not disturbing?
- Does the site have any positive reviews?

**By access**

- Do the pages work sufficiently quickly and efficiently?
- Is the page free or do we have to pay a certain fee to access to certain parts of it?

**By orientation**

- Is it simple to determine from the homepage, what is the organization structure and what choices does the user have?
- Are hyperlinks simply distinguishable from the other text?
- Are hyperlinks logically grouped?
- Are the site's navigation and orientation simple and intuitive?
- Is there a risk of getting lost?
- Is there a risk of getting stuck on one of the site's parts?
- Aren't there broken hyperlinks?
- Does the site have a search engine?
- Does the site have a function to bookmark or highlight the content?

**By overall appearance**

- Is it immediately obvious that the site will be easy to work with?
- Can the user manipulate the site in different ways? Does it incorporate interactive elements, which develop investigative and interpretative skills of the student?
- Is the language appropriate to the age and abilities of the target audience?

- Does the website use audio or video samples?
- Is the multimedia content along with design itself helpful or distracting?
- Does the size, type of font, the contrast between the text and the background contribute to better reading?
- Is the website monolingual or multilingual?
- Are individual pages sufficiently distinguishable?

**By content**

- Is there enough content or is the topic covered superficially?
- Aren't there any indications of subjectivity and impartiality?
- In what geographical scale is the topic presented?
- Are the data factually correct?
- Is there content which normally wouldn't be acquired from existing textbooks and other materials?

### 3.3. HyperText

There is no doubt that the Internet is today's largest and most significant online information infrastructure. Hypertext is one of the fundamental concepts of it. In general, it is a text with references displayed on electronic devices, with directed relationship between two objects. The term „hypertext“ and „hypermedia“ was coined by Ted Nelson, who in 1960 founded *Project Xanadai* – first ever hypertext project. Hypertext exploded in 1987, as a consequence of Apple Computer's software named *HyperCard*. Tim Berners-Lee, who proposed and prototyped the „WorldWideWeb“ said: „HyperText is a way to link and access information of various kinds as a web of nodes in which the user can browse at will. Potentially, HyperText provides a single user-interface to many large classes of stored information such as reports, notes, databases, computer documentation and on-line systems...” [9]

A program which provides access to the hypertext world is called a browser.

While Hyperlinks provide cross references to documents from external websites, a lesser known feature called StretchText, expands the content of reference in a place. The reader thus has better level-of-detail control. Thanks to which, it is possible to have a concisely structured text, with incorporated digressions. Both in the same document.

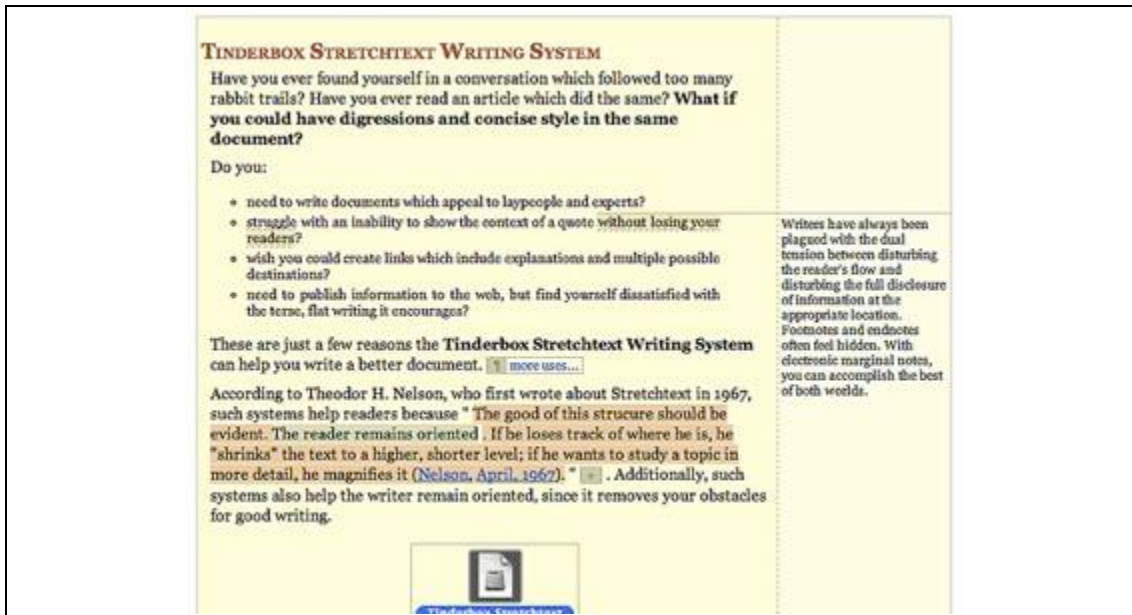


Figure 15. StretchText

Although links are crucial parts of navigation in the World Wide Web, they have been just barely explored. They have a significant impact on how the websites look and how we interact with them. They also have effects on reading habits and performance. Study Comparing Link Marker Visualization Techniques – Changes in Reading Behavior conducted by H. Obendor and H. Weinreich from the University of Hamburg imply that „...the standard appearance of link markers has seriously underestimated effects on the usability of Web pages. They can significantly reduce the readability of the text, and alternatives should be carefully considered for the design of future Web browsers“. [10] Web hyperlinks interconnect two objects between each other. Usually, it is a single word, a small phrase, a graphic or even a table referring to another piece of information, whether it is in the same place or in the new destination. We distinguish two types of links: associative, which are clickable words or phrases embedded in the continuous text, or structural links, which are often in exposed locations known as „navigation bar“. Structural links have more a navigational character. As indicated above, links are powerful, but they are facing certain problems. The most common factor they are criticized for is their multi-directivity and ambiguity. Thus, it is very important for online readers to distinguish among hyperlink types. A good idea of the link type can be provided by a visual clue, indicating the source, the link destination and especially the concept of action. Unfortunately, this is not very common. On top of that, HTML links are not even properly typed, and today's only link attribute defined is „title“, which can be shown in a little popup box. HTML 4.0 identified concepts for the visualization of the link content and its subsection, but they have not been realized yet. Low discriminability between local and external links is also problematic, as users often do not expect a link to lead to an external site. The

mentioned study further states: „the need to develop and evaluate new concepts becomes even more urgent with the arrival of new techniques and higher usability demands; the time for a change in link visualization might have come.“ [10]

An unvisited link is conventionally underlined and colored blue, on the contrary, a visited link is colored red. This principle goes back to T. Berners-Lee's first browser prototype. The choice of these two colors was of a technical nature. Computers at that time were limited to 16 color display and the blue color was the darkest one, some of the computers still used black-and-white displays, and that is why he used the underline. Newer versions of displays allowed new link types visualizations: double underline, boxed or no underline.

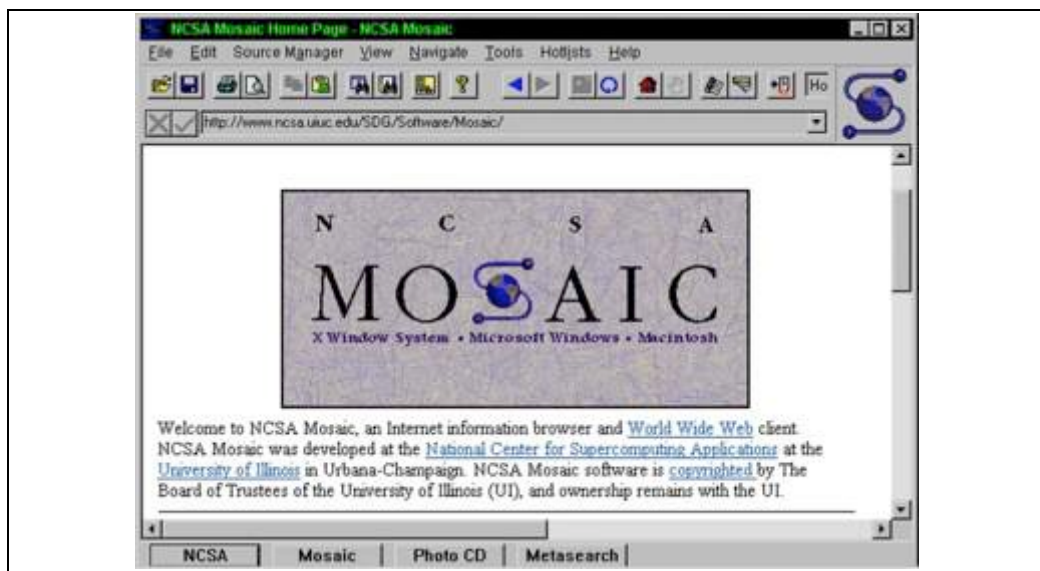


Figure 16. Web prototype – Mosaic Home Page

These color standards, as long as the length of the link, set to 3 to 5 word, are still the most commonly seen and are not supposed to be altered for the sake of consistency. On the other hand, link underlying has been proved as problematic. It is because the line reduces the readability of text as it interferes with parts of letters under the baseline. This is why italic or bold typefaces are supposed to be used for differentiation instead. Another way of marking the link is by the use of graphics near the text, yet this has to be done properly and legibly. Coloring the background of a text is a better alternative, but also the use of links-on-demand, which as the name suggests, are links hidden until the particular key is pressed.

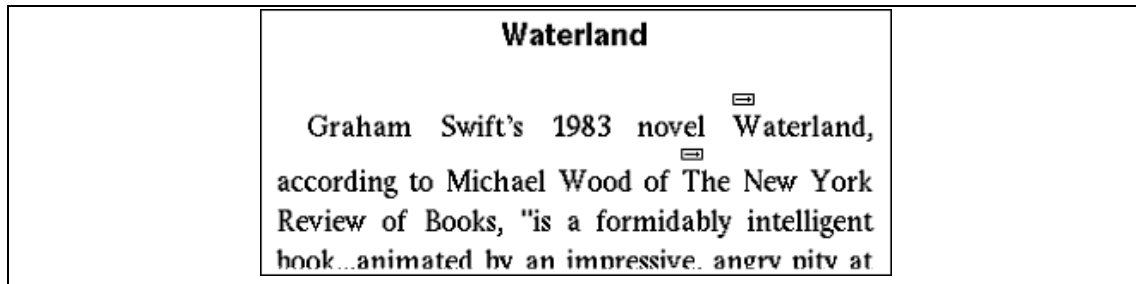


Figure 17. Intermedia link markers

Since the visualization of hyperlinks has a great effect on reading performance it is important to choose them properly and deliberately. The mentioned study proves that underlined links, on the one hand, decrease the reading performance; on the other hand, they attract the user's attention and help to „scan“ the content quickly. It also shows that the content is better readable when links are initially hidden, thus links-on-demands can also be an option for certain target audience.

Categorization of links is following:

- Navigation Links can be internal or external.
- Parenthetical Links: use visual marks integrated between two words, which expand content between the lines when clicked. Reference content can be arbitrarily long and can include tabs, images, short marginalia or other references.
- Ontological Links refer to formally structured definitions.
- Situational Links are helpful for the understanding of context, because the reader can „zoom out“ and see the outline.
- Reactive Links are the type of hyperlink, which actually opens up a different layout tab within the same drawing,

Links can be styled differently depending on what state they are in. The four links states are: link, visited, hover and active.

## 4. BEST PRACTICES

Nowadays, more and more institutions or organizations rely on the use of interactive novel approach to present their art collection online or to uncover the message they want to tell. The intention here is to give a better understanding of trends, technological possibilities, to learn what works and contrary, where the solutions fails short. Examples listed below are successful implementation of digital media and web technologies into a historic subject.

### 4.1. Warsaw Rising 1944

The project was developed in cooperation between the *Topography of Terror Foundation in Berlin* and the *Warsaw Rising Museum* for the 70th anniversary of the Warsaw Rising. It tells a story about Warsaw city from 1918, which is divided into ten chapters. The homepage of the website is at the same time an intro of the first chapter. Each section disposes of a varied multimedia content. User experience and interface design are elaborated to the smallest details. The main menu is a full-screen interactive crossroad to chapters. Navigation bar is positioned at the bottom of the page and shows where the user currently is. It also provides a navigation between sections. Thanks to designer's keen eye for detail, wise use of colors, expert work with typography, use of sounds or excellent scrolling effects is the website one of the most striking solutions dealing with history.

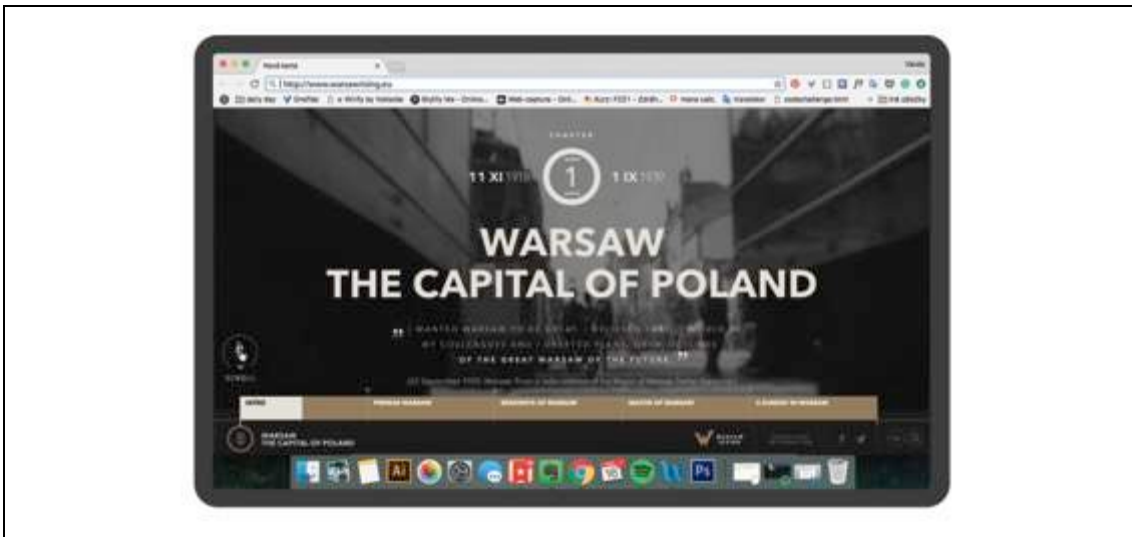


Figure 18. Warsaw Rising 1944 Home Page



## 4.2. Trivium Art History

"Trivium is an attempt to change how art history is experienced and understood. We're building a new canon to tell the stories of the diverse artists that changed culture — an instruction manual for creative culture-jamming."

– as stated on the website.

*Trivium* is a free online art history book dedicated to students and educators. It runs by a leadership of two men: Reed Enger, who is an experience designer and Rick Love, who is the chair-elect of the *School of Art and Design at the University of Northwestern St. Paul*. Of course, it also partners a huge team of other collaborators. At the homepage of the website we are referred to featured artists, artworks, and timelines of art. The menu is concise and labeling of its items is noticeable conceived. Each label for the section includes a clue about how the user will work with content inside, such as for example "read", "explore" or "meet". In the context of history, I regard the downside the fact that there is no classical timeline or another way, which would depict relationships between the art and historical events. Timelines in this approach are rather collections of articles, which range from Mesopotamia to Abstract Expressionism. Artist's page is ripped in half, with one column providing a textual description and the other representing his works. Icons, that play a role of navigation in the webpage give a nice touch to an otherwise plain, typography-driven design. Considering the fact, that project is in the development phase, it is really summary and well structured. Delightful design, seamless page transitions together with a small dose of microinteractions result in a nicely done project.

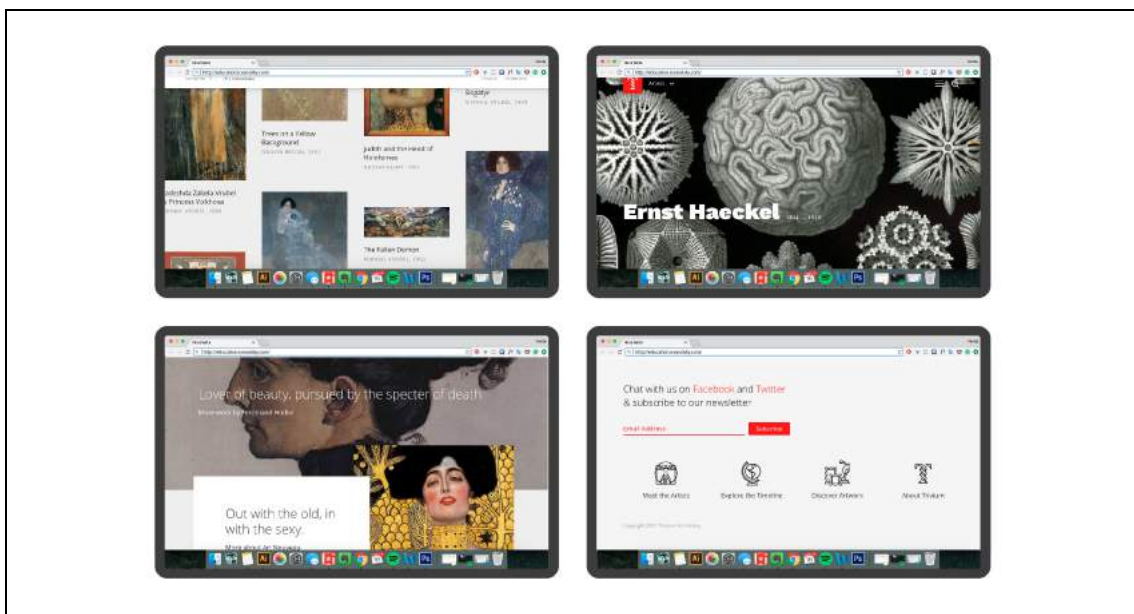


Figure 19. Trivium art history

### 4.3. Ice & Sky

The Ice & Sky website is published by the Association Wild-Touch, a non-profit public interest organization, creates an immersive experience through storytelling. In its cross-disciplinary approach to climate issues „relies on cinematographic resources to offer an unparalleled educational program for all members of the educational community, from students to parents“ – statement on the website. This educational platform tells a story of our planet through striking visual content, including animated films, videos shots, diagrams and beautiful interactive illustrations.

Homepage features stunning animated illustration with the title of the project accompanied by a short description. By clicking on the button „discover“, we enter the website. This step utilizes interactive animations, which gives an insight into each chapter and mimics the function of the menu. Each chapter is partitioned into separated topics and themes. Simple navigation positioned at the bottom of the site allows us to navigate through site content and also give us the idea of where we are. The layout, page transitions and navigation are very well thought-out. This site is simply a must see.

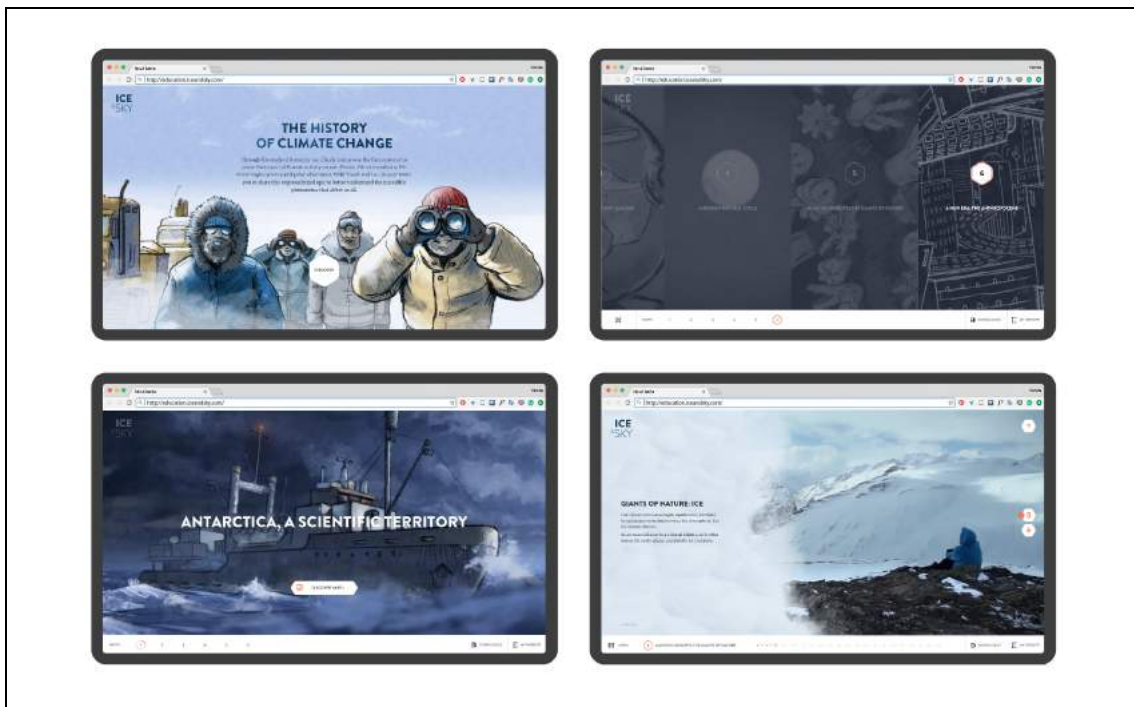


Figure 20. Ice & Sky educative interactive website

### 4.4. Histography

The project is overwhelming interactive timeline that spans across 14 billion years of history. The historical events are drawn from Wikipedia and are self-updated daily. Navigation across the main periods is positioned at the bottom of

the site and triggered by a hover over the timeline navigator. Events can be filtered by categories, such as wars, inventions, art or music. Except for the manual selection in the timeline, single events can also be accessed in another way. By clicking on the green square, which by the way doesn't seem to be clickable at all, the user can switch to another view mode. There, he can scroll through events in a side panel. For some reasons, this interface contrary to the first one lacks controls like a filter or manual selection in a visualization graph. The single historical event are displayed always in the same way, with the title, descriptive image and resources to a relevant video or article on Wikipedia. The general impression of the site is great. It is designed to encourage discovery, although more refined navigation would ensure better usability.



Figure 21. Histography – homepage

#### 4.5. A visual history of computers

This site depicts how computing technology has evolved over the past 70 years. It is provided by IT support and computer service firm Akita. The entire website is continuous single page layout, allowing the user to scroll vertically through the chunks of the time period. With the sticky navigation bar sitting in the vertical space on the right of the page it takes a minimalist approach. A range of web design trends were used, such as for example incorporated changing background colors. This is a great visual clue that allows visitors to literally see where each section begins and ends. Furthermore, it contains engaging elements, which are appearing as the user scroll through the site, motion effects and clickable elements, which serve a detailed information. The design is very timely, modern and delightful, especially thanks to appealing illustrations. Nevertheless, the downside of the solution is an immature landing page.



Figure 22. History of computing

## 4.6. Evaluation

In the websites analyzed above and in many others I came across during the research, some functions, elements or other aesthetical patterns were repeated. These work well, aides in navigability, make the user experience usable and more appealing to visitors. Gained learnings are following:

- In terms of the navigational structure, examples usually include: logo of the project, site credits, social sharing icons, sound button, the main menu icon, labels for chapters and navigation within their parts. In some cases, there is a question mark icon providing tutorial or text explaining how to work with the content of the site.
- The homepage features captivating image or video accompanied with a title and description about the project.
- The menu serves as a signpost between periods, usually in a fullscreen overlay layout.
- Incorporation of sound, both in a form of music in the background and in a form of sound effects boost the user experience.
- Subtle animations, short videos or interactive illustrations take the website to another level.

### **III. PROJECT PART**

## 5. PROCESS AND METHODOLOGY

Interpretation transform ideas into meaningful results. However, finding the meaning in a tangle of thoughts and subsequently transforming them into actionable opportunities for design is not an easy task. It involves sorting and condensing thoughts until a compelling point of view and clear direction for ideation is found.

Understanding the challenge, generating ideas, defining goals and strategy was the most complex part of my design process. What follows is a sum of learnings, the most interesting insights, and ideas, I have come up with.

### 5.1. Objectives of the project

The outcome of this work should be visually striking interactive education tool intended for students and a general public, although not at the academical level. The main objectives include:

- to raise interest in art history
- to provide a complete, coherent overview of the last 100 years of the Czech art scene

#### 5.1.1. Determining goals and defining the target audience

The important question to solve, was to decide whether the platform will be of an academic nature or will be accessible by a wider public also. In this regard the possibilities would be either to create e-learning platform or an informative, though entertaining gamified website. I decided to designate a project to those interested in the topic and find it difficult to orientate in it. Moreover, the fact that the Czech republic will next year celebrate a one hundred years since its foundation, actually helped me to answer the question. Thus, the main target group are students of art at secondary and elementary schools, and those who find brief introduction to the subject.

Short-term goals were to identify a solutions for the outcome, design interface and to make a partially functional prototype. Steps planned for the future include getting a feedback, incorporate these learnings and iterate the prototype. This would be done by evaluation of current system, by testing different layouts, or by user testing. Long-term goal of the project is to launch the fully functional website in 2018.

## 5.2. Ideation

During the writing and research phase, my perspectives were evolving. As I gained certain learnings, the understanding of what my expectations and intentions really are has changed. In retrospect, the original idea was to span whole art history ranging from antiquity to present. It was three years ago when I was working on the educational database assignment at school and without being aware of that, this work has become a predecessor of the current diploma project.

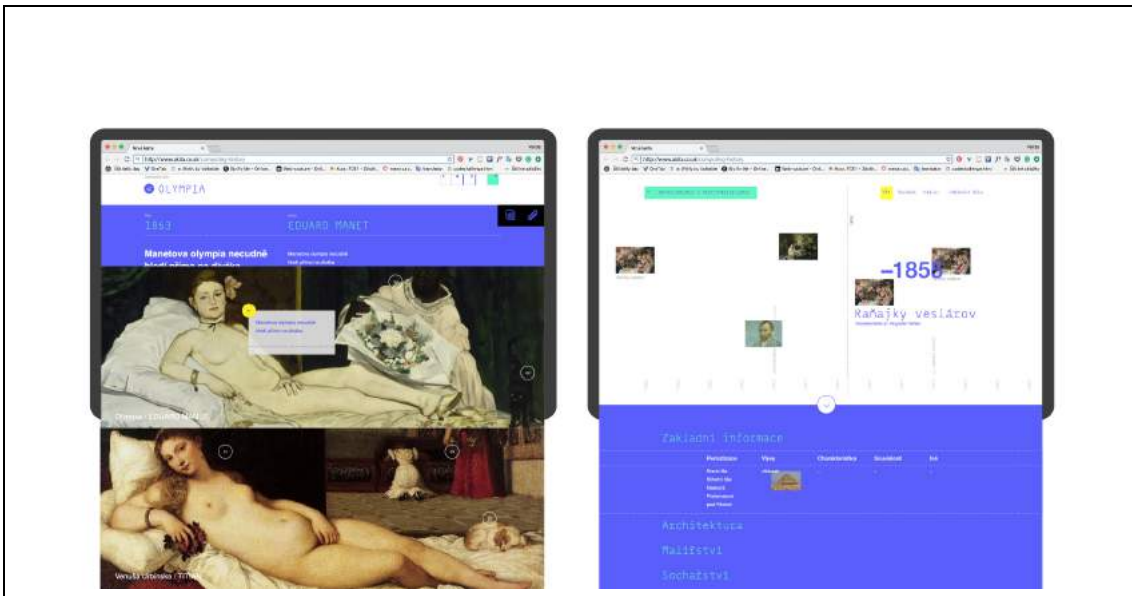


Figure 23. Parnoramart – original concept

However, after first thoughts, drafts and consultations, this approach turned out to be inadequate to my capabilities and ambitions. I have also determined, that this kind of art databases already exists. Also, it proved that the conception is of a highly academic nature, and I just realized, that it is not exactly what I would like to accomplish.

### 5.2.1. Learnings

What stands out from my observation is as follows:

- relative artworks define each time period, not a list of artists
- student is more probable to remember a few artworks in more detail, than a list of them
- emphasis is placed on memorizing the exact dates, when really knowledge of the relative ordering would suffice
- a longer time period is better digestible, when partitioned into smaller chunks defined by landmark years
- resources lack cross-connection, they don't give us information in context

- comparison of the Czech and world events lacks
- art history follows uniform paradigm in the order of the content delivery:
  - era selection – period selection + description – architecture / sculpture / painting selection – list of artists broken down by country of origin
  - artist selection + description + list of artworks – explanation of the significant masterpiece, if ever
- Even the Czechia provides some examples of interactive exploration of the history topics, it is not the case in the field of arthistory
- The most representative source of information about Czech art scene intermediate to the foreign readers provides publication „Czech Contemporary Art Guide“ (in the context of the thesis's focus)
- quotation is effective way to interpret artwork or artist
- once the knowledge in the field of art history is gained it is difficult to retain it
- by learning art history in a linear way, it is likely that student will forget what he has previously learned (we need to take into account that the study can last three to four school years)
- Student is often not able to imagine the time the artists lived in or to explain why they formed

Previous learnings resulted into following clusters:

- Interactive timeline
- Moodboard of the time
- Interactive reading
- The use of infographics or data visualization
- Dashboard screen for each period
- Interactive cards for various content (pinterest approach)
- Learning by questioning
- Interactive cards
- Comparative learning
- Parallax as a tool for explaining the context



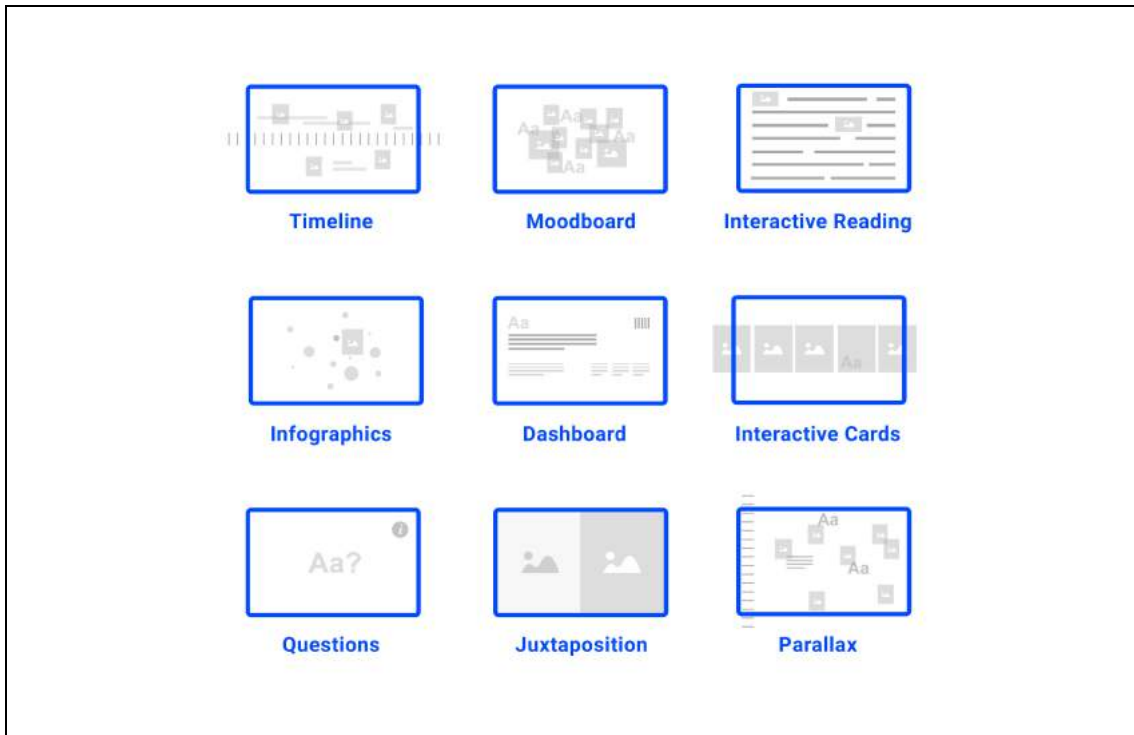


Figure 24. Concepts for learning history

### 5.2.2. Insights

What follows are succinct expressions of what I have learned from the field research, be it relevant, inspiring or crazy.

- the need to link particular work of art with a historical context
- timestamp is much more necessary in overall periodization
- first the context of the time need to be understood, afterward, we can dig deeper into the subject
- well-known historical fact is more helpful guide than an exact date
- the need of utilizing digital media potential in order to interpret art history in nonlinear and cross-referenced way
- focus on the explanation of significant works in more detail
- quotation, scandal, rumor or any interesting fact can attract attention
- To present the significant works in more detail

### 5.2.3. Ideas

#### Synchronoptic parallax

„Synchronoptic“ means visible at the same time, or with parallel views. This approach gives the user a view of all the information, such as historical events, significant artworks and styles in one go. It can also be beneficial to compare events in the Czechia with the rest of the world. Moreover, it can portray a specific artwork with its context parallelly.

**Self- personalized timeline**

Instead of pre-prepared overwhelmed timeline the user will be able to add events according to his interest. In other words, he can decide what he wants to learn and remember. Self-generated timeline can be a great solution, because what one person considers important doesn't necessarily need to be important to another.

**Users-sorted content**

Approach, when users vote up or vote down the content seems to gain a popularity, even in the field of arthistory. In this conception, the user has ability to like the content and to see most relevant content according to others. This is opposite approach to traditional one, when history subject is sorted by art historian. I think that in the case of modern history, this method is applicable. Moreover, this solution meets the criteria for social aspect of the educational sites. Possible alternative to sorting a content based on the number of likes is on the number of views.

**Multi-way approach to content by user's time**

Another way how to give the user ability of choice. Based on the fact that the user can be either random visitor willing to take a short survey, one who returns repeatedly for a longer reserved time or a student passing exam, devoted for intense study.

**Concept of state final examination**

The course structure could be based on an examination process. Its structure is following: in the first phase student prepares an outline of what he knows about the subject, in the second phase he presents this knowledge in front of a commission, and finally in the third phase he responds to questions. Course of the website should follow this structure: brief overview, explanation of the subject matter and timer with questions.

**Interactive gif cards**

These cards would incorporate everything important about the artist such as his name, the span in which he lived, art styles, most significant work and so on. Because gif can incorporate images, texts, video shots into the most condensed way of storytelling, is this very popular, easy to share tool worthy of consideration.

**Analogy of the game**

The use of the analogy of a game, such as for example pexeso or solitaire for the concept of the platform is another possible solution.

After generating all of these ideas, realizing the advantages and disadvantages of individual concepts, the process resulted in final concept solutions.

#### 5.2.4. Possible solution 1 : „Interactive storytelling“

The concept of this solution lies in interactive diving into the subject matter and in uncovering its parts. It turns out that students often fail to learn or even to read to the end academic literature. This is because of its linearity, length and level of detail. Contrary to classic reading process, when we read long texts, and subsequently we sort out and highlight the most relevant parts, this is the opposite approach.

At the beginning of the story, there would be just a single sentence, such as for example „100 years of Czech Contemporary art.“ By clicking on the hyperlink „100 years“ the text will expand into following state: „100years of Czech Contemporary art from 1900, 1964, 1989 to a present day.“ The years are again hyperlinks, and by clicking on them the relevant content will reveal. By doing so, we can take a deep look at the content, we are interested in. The another way, how to interactively manipulate the text, are different multimedia screens. These will show up after hovering over the link. This multimedia content can include images, videos, audios and relevant references. An arbitrary explored text could be downloaded in pdf or saved as a webpage. After first prototyping of the solution, it resulted in the finding that this principle is not the most appropriate for long texts and the user is probable to lose in the text. The repeat procedure ceases to be exciting and can start to get bored or annoying. Above all, I have not been able to incorporate my outlined goals into this solution. To conclude, this solution is more appropriate to tell the history than to deal with arthistory.

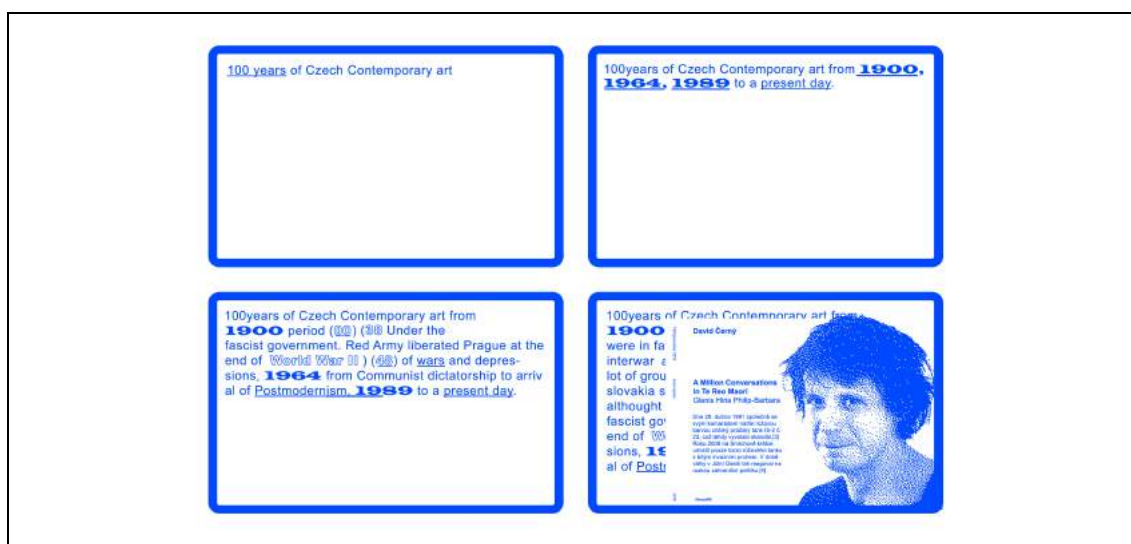


Figure 25. Possible solution1 – concept

### 5.2.5. Possible solution2 : „Period, context, artwork“

This solution is predecessor of final concept, although it doesn't include the timeline, and interactive work with text. What is similar that the whole content is gradually dosed in following way: main periodization, period selection, significant artwork accompanied by a historical context, which can be filtered by topic.

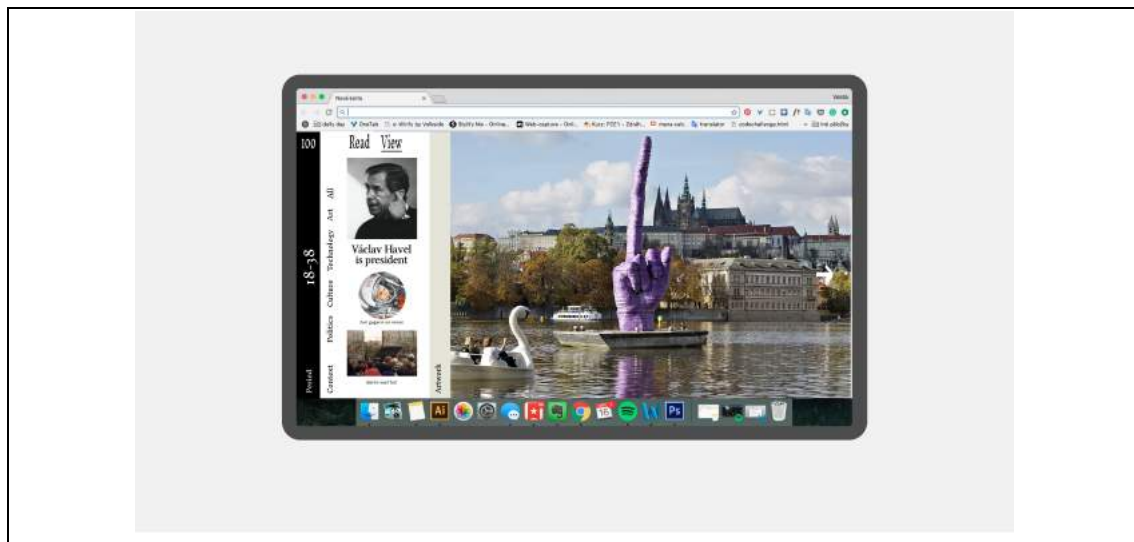


Figure 26. Possible solution2

## 6. PROPOSED PROJECT SOLUTION

The main emphasis is laid on putting the artwork into political, technological or cultural context, both in the Czechia and the rest of the world. The whole time period long one hundred years, is partitioned into smaller chunks, such as for example "1918-1938 The Interwar avantgarde". By entering a particular period, the user will find himself in a „VIEW“ mode. Here, he can explore artworks spread on an interactive parallax timeline, with the context occurring in the background. Assuming that the user is well-oriented in for example political history, he has a choice to filter context and to observe only relationships between politics and artworks. This can help him to incorporate art history to his knowledge better. As new information are more probable to be remembered, when related to pre-existing knowledge. The main benefit of this solution, I see in a way I tackled the timeline functionality. Opposite to conventional, static approach, parallax scrolling technique creates an illusion of time as it depicts the relationships between events more vividly.

The second mode, aptly named „READ“ contains textual description about everything what was at the timeline: the time period, list of artists forming, explanatory notes about styles, references and so on.

To sum up, „view approach“ helps to show relationships between art and events and to absorb informations more visually, on the contrary „read approach“ allow him to immerse in the study. This multiway solution targets his different needs.

Meeting the set objectives:

- personalised: ability to choose read or view mode, ability to filter context
- contextual: artworks are presented in the background of historical context
- interactive: parallax timeline
- easy to absorb: with stretchtext, it is possible to expand texts and dig more deeply. ability to filter events on timeline, division of whole period into smaller chunks
- coherent: interconnected content of the site along with well-structured navigation
- entertaining: the use of parallax makes it fun and engaging with depth using layering

The following deliverables show a bit of the thinking that went into the system.

### 6.1. Information architecture structure

This step helped me to organize the site content into taxonomies and hierarchies of information and to better communicate conceptual overviews. The underlying

structure of information, especially in such a complex case, is the core of the whole process and must be framed out before other specific disciplines.

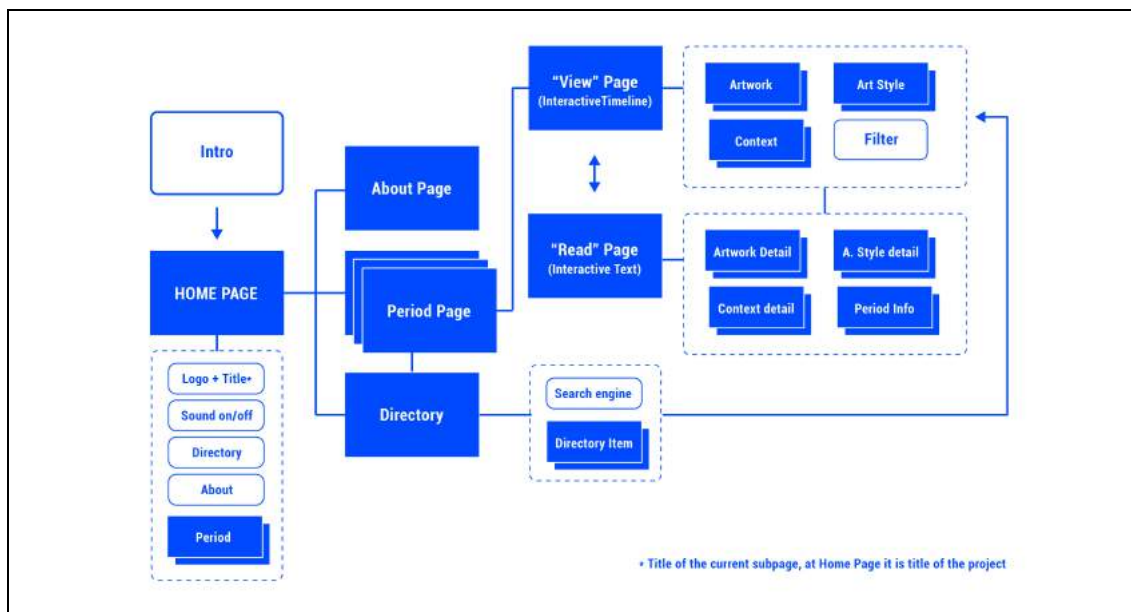


Figure 27. Project information architecture

## 6.2. Wireframe

Another part of design process is wireframing. It is helpful to define the page structures and to organise the content layout. In a heavy-content type of sites it is almost an obligation. Figure 28 illustrates developed user interface of major pages.

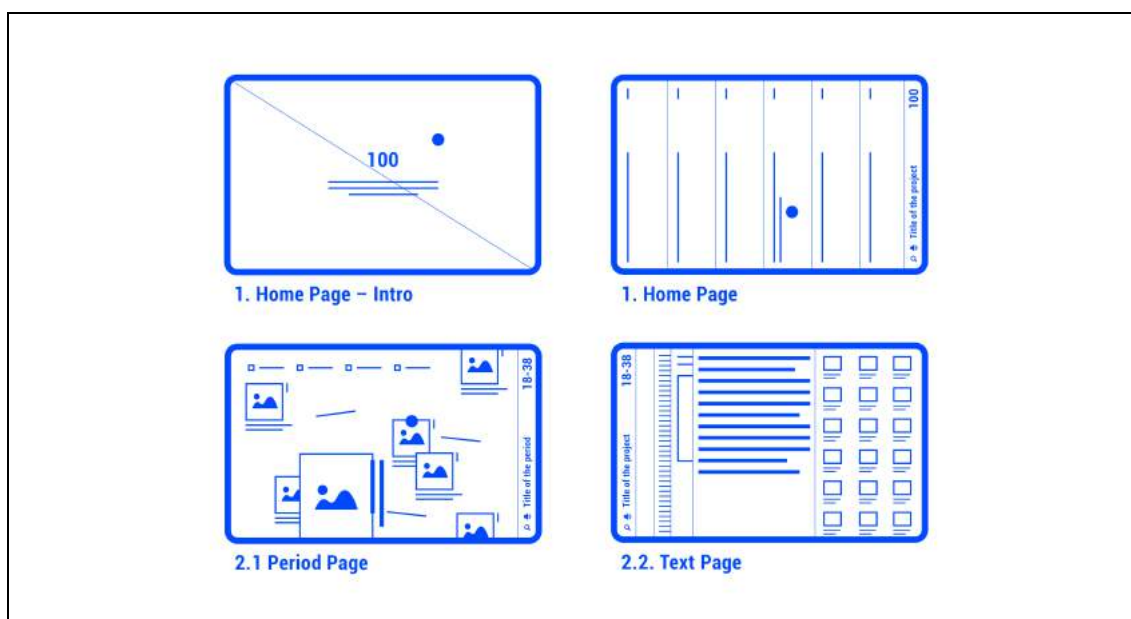


Figure 28. Project wireframe

## 6.3. Design style guides

### 6.3.1. Logo and project naming

The name should be simple, easy to remember and should clearly evoke what is the website about. Another requirement for the name, is that it must be usable in both Czech and foreign environments. As far as I anticipate, the name will change over time, I use a working title „100“ in my designs.

### 6.3.2. Typography

Because the overall design of the website should be minimal, typography is logically one of the most important elements I can build the solution on. Typography-driven website design is a very popular trend. Appropriately chosen font family, can play an important role in setting the tone, theme and the message of a the whole website. The thoughtful and deliberate selection of its point size, line length, leading, tracking, kerning, color can drastically effect a design and a way an information is perceived.



Figure 29. Font used – Fabrik by Tightlype

### 6.3.3. Imagery





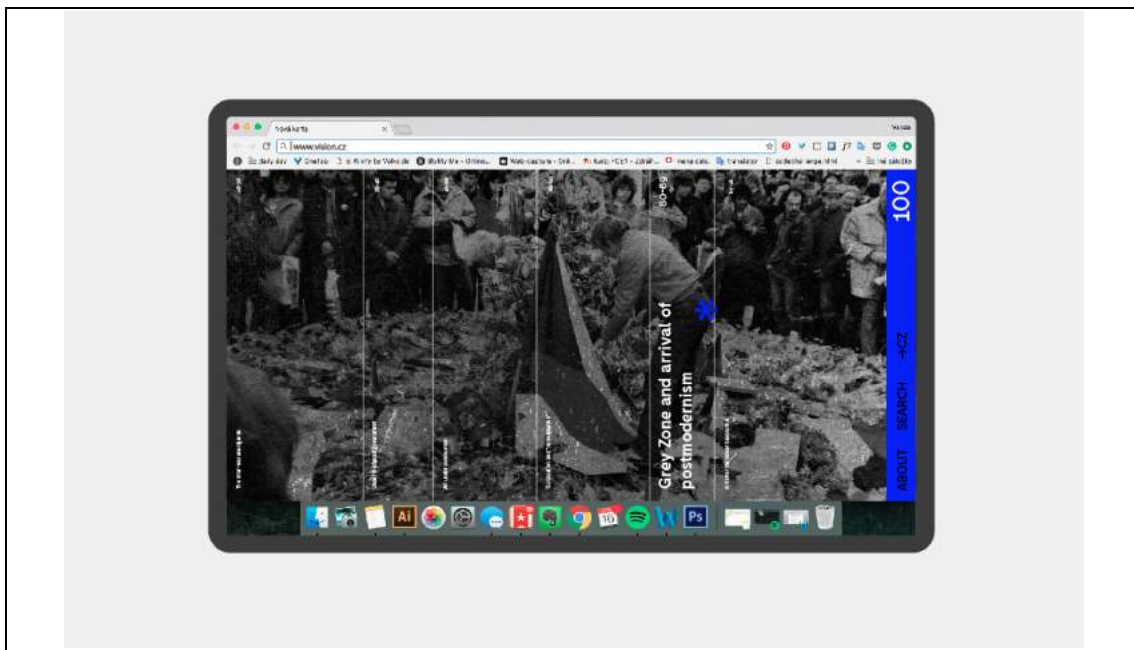
*Figure 30. Imagery – unifying filter*

Based on the fact that project deals with the subject of art history, there are certain constraints, that need to be kept in mind. Saying „Form follows function“ applies twice in this case, as the main purpose of the site is to provide the best experience from the artistic work, not the design itself. Creativity and innovation were left to the conceptual solution. Nevertheless, because artworks and historical events have their own visual aesthetics, I applied a black and white filter to photographs, in order to prevent the content become scattered and chaotic. As Figure 33 illustrates, different type of context is visually distinguished.

### 6.3.1. The Timeline

In terms of navigating the timeline, the most important thing to know is that the user scrolls down the page to go forward in time. As he scrolls down, all historical context is showing up. Parallax takes a story-telling approach to guide him through the site and also makes his visits lasts longer. This approach provokes curiosity and users are encouraged to scroll the entire period.

By selecting a particular item from the timeline he will be switched into the „Read“ mode, where all the explanatory notes are provided. Either he can decide to stay there, and to further interact with text and dig deeper into the topic, or he can returns back to the main timeline. Navigation through main periods is by revealing fullscreen overlay menu. This menu is at the same time the home page of the website.

*Figure 31. Home Page proposal*



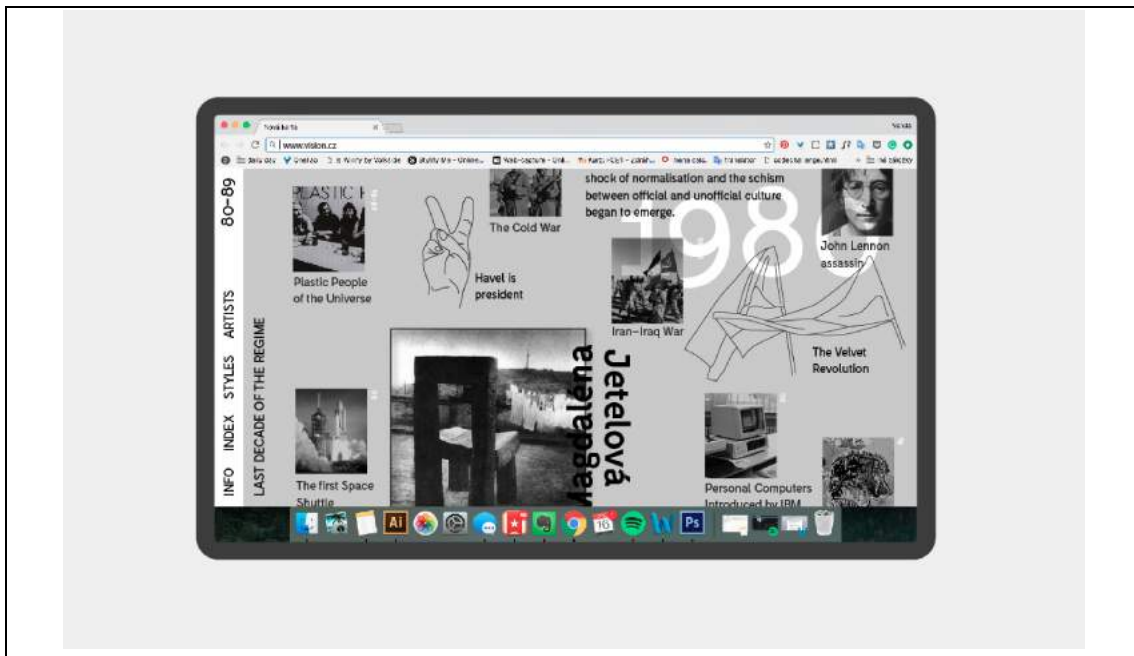


Figure 32. Timeline Page

## 6.4. Technology

### 6.4.1. Parallax

Parallax scrolling was popularized in video games, and since 2011 it is widely used in web design. It is a tool used to better engage users and enhance their experience but also to embrace the fluidity of the Web.

With this method background images move by the camera slower than foreground images. Since it has its undeniable advantages, there are also several downsides. With its use, we risk slow load times, leading to frustrated visitors, and what is important, by now it is not compatible with responsive and mobile design. Some older browser can also have difficulties.

Figure 34 illustrates an phase from programming the parallax timeline.

Outcome is based on HTML Parallax Scrolling Timeline script, which uses Javascript. Events that last longer were in initial script displayed statically, with altered length depicting the time. On the contrary, in refined solution, span of time is defined by its speed. In other words, in the moment the event ends, it is no longer presented on the screen. In visual aspects it means, that events that took place longer will move more slowly on the timeline.

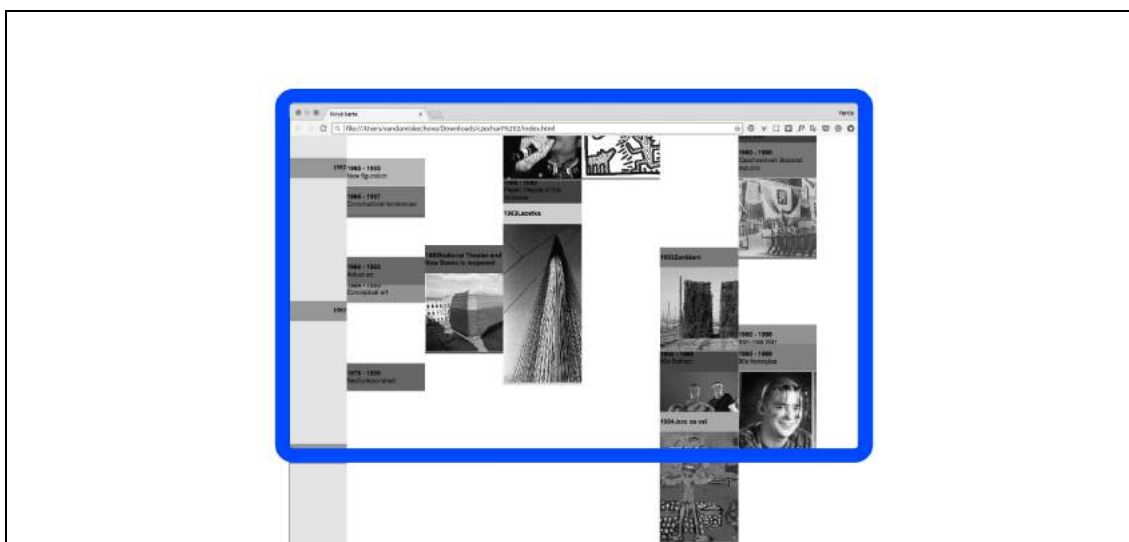


Figure 33. Phase of the programming process

## 6.5. Demands on production and the future

Besides the conception of solution itself, web design, programming and web development of framework for updating and adding data, it is also necessary to calculate with other costs: curator's work on the content, cooperation with art historians, sound designers, production team and other maintenance costs.

With regard to ensure the funding of the project, raised questions during the project phase, whether to create a free or a profitable tool. The possibility was also to create two versions: „lite“ and „full“, while the complete version would only be available after purchase. Completely different options are to obtain a grant or a to collaborate under the auspices of an institution.

In 2017, the City of Brno declared a subsidy program focused on the preparation and implementation of cultural events related to celebrations or commemorating the 100th anniversary of Czechoslovakia.

I am applying for the grant with this diploma work.

## CONCLUSION

This work examined various methodologies of art history and described ways of its interpretation through time. The aim of the thesis was also to introduce the reader with possibilities of digital media in education. Conclusions from the research of prevalently available learning sources in the Czechia, confirmed assumptions, that similar platform, dealing with the art history, does not exist. Not even any other popularized, condensed sources that would bring the issue to the people. Although there are novelist approaches, most under the auspices of *The Institute for the Study of Totalitarian Regimes*, it is not the case for exploring the art scene.

When working on project part, I tried to exploit all the knowledge and experience gained during my last 5 years of study at the school. The result of my efforts should be an interactive educational website that will impress by its visual processing while enriching the user with basic information in the field of Czech contemporary art history. The project has a great chance to bring new light into the issue not only in our country but also in global merit. It aims to be launched the next year (in 2018) when the Czechia will celebrate one hundred years since its founding. Whether the proposed solution is competitive enough will show this near future.

To conclude, I'm glad I was able to meet the goals, that I have set out at the beginning. Personal benefits I find in enhancing knowledge in the field and in professional development thanks to the systematic and persistent work. I enjoyed the whole process and hope this was just the beginning. My biggest success would be real implementation of the project.

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## **APPENDICIES**

[P1] Content of the enclosed CD-ROM

## **APPENDIX PI: CONTENT OF THE DATA CARTRIDGE CD**

The enclosed CD contains:

- This work in PDF and DOC formats (Adobe Acrobat and Microsoft Word)
- Image documentation of the project part