

GRAPHIC CONTENT DESIGN OF THE DIGITAL INTERACTIVE BOOK

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Abstract. The present study introduced a design for graphic content of a digital interactive book, which is based on a system of design approaches and techniques for achieving a holistic visual language regarding the digital exposition environment of the cultural objects.

Keywords: Design, Digital Environment, Interactive Book, Visual Language, Design Approaches

Introduction. In 21st century, the design of the digital interactive platforms has become an urgent task. Interactive book is one of the modern platforms containing the graphic content of the cultural objects. Using software, graphic content of the cultural objects is immersed in a new digital interactive space in the form of a digital museum exhibition. To create a holistic image for the graphic content of a digital interactive book, it is necessary to determine characteristic features related to the cultural objects (in terms of axiological and morphological purposes). The actual problem is preparing a competent organization with respect to the design and visual effects to create the viewer impressions after viewing in a digital interactive environment.

The structure of a digital interactive book consists of the typical structure of a printed book, interface management and operation settings.

The visual and audio channels for the communication of the digital environment are given in a holistic way. To achieve them, the scientific description of the cultural objects is translated into the visual language of the digital exposure. The graphic content of the digital exposition is stylized from certain cultural objects that are iconic, meaningful and associative to discover the concept.

RESEARCH METHOD

The unity of the digital exposure is achieved using the system of design approaches in all layers of the graphic content design: 1) typography and layout presentation; 2) infographics and navigation systems; 3) color coding; 4) stylization.

Different techniques are used for designing an interactive book, each of which can include interactive elements or additional animation such as: 1) photographs; 2) video graphics; 3) typography; 4) infographics; 5) illustration; 6) 3D-graphics (Fig. 1).

In the following, each of the submitted forms is presented in more detail.

1. Photographics

- **Subject:** It is concerned with displaying of the exhibits using subject digitization. In this aspect, the quality of the footage plays an important role. Thus, the general requirements are formed for the material: maximum image quality, no noise, graininess, glare and exposure disturbances (unless the defects are not copyrighted); the object clarity in the image, maximum accuracy in transferring the form, material texture, important details; choosing the right angle.

- **Documentary:** It is referred to the demonstration of the exhibits using the photographic method in a specific environment, or the context of time and place. This technique is considered as a document of the specific era, and the evidence for the real events.

- **Author:** A story can be narrated about the exposing objects using the author's photographic approach, as the main idea is revealed through a figurative presentation of the material.

- **Combined (collage):** The collage method allows you to combine various states related to the subject of the exposition in a single space to reflect the historical facts. Thus, a fundamentally new graphical environment is created, which is fascinating to be considered in its details.

The photo has great flexibility of coverage; by which the information is converted into the documentation. The same can be attributed to this approach and the author's photo processing can be applied, for example, taking a double exposure using colors that are not typical for an object (duplex, color filters or gels, etc.).

2. Video graphics

- **Documentary:** It is concerned with submitting the information through documentary footage.

- **Author:** It is referred to a figurative subjective presentation in the form of author's reading of the exposition topic. Using the copyrighted videos, they can also be explained, after the installation.

- Animation / animation: This is a story about the exhibit in the form of a stylized visual narration. As a rule, this form of interaction is ironic in nature, contributing in attracting a younger audience, and it is also ideal for children's perception of the information.

3. Typography

- Classical: A media book is designed according to the principles and using the typographical techniques including “clean” typesetting and stylistically competent possession of the culture type.
- Combined: Typographic trick can be used to create a specific emotional effect. The impression is enhanced by the use of bright color combinations, textures and unusual arrangement of the elements.

Effective impressions are made, when the selected fonts are joined together to create a general composition.

Using the right approach, the typographer enhances the effect of the text.

4. Infographics: It is consisted of a visual story about the exhibit and time using graphs and charts, as well as listing the accurate historical data. The scheme reveals the connection, and indicates the processes. Regarding the graphic performance, they can vary in diversity, but they should be as simple and understandable as possible.

Varieties of the art submission:

- Static: A classic form of presenting the information.
- Temporary: Demonstrating the development in time of any events.
- Cartographic: In case of the exhibits and facts which are related to the geographical conditions.
- Hierarchical: Describing the processes in terms of hierarchy.
- Matrix: It is used when a large amount of data is devoted to one problem.
- Algorithmic: Entertaining presentation of the information using the game approach.
- Photographic: It is applied for a more visual presentation of the information.
- Comparative: Presenting comparative characteristics of the objects of exposure.
- Research: Demonstrating all kinds of data about the object.

5. Illustration

Manual (digitized) / Digital (raster and vector): It is referred to the visual narration through illustration of the author's conceptual perception. The style is determined based on the theme of the exhibition, and the intended audience.

6. 3D graphics

- Classic: Using 3D-graphics, you can create the illusion of an alternate reality and additional context of the exhibition. It is also possible to model the specific kinds of exhibits such as lost and destroyed samples.
- Combined: The combination of 3D graphics and animation with a “flat” 2D design is a modern trend in design. Giving extra depth to a flat minimalist design using realistic shadows, one can create the look of a three-dimensional space looking more and more like a real life situation. This effect will be visually enhanced, if the objects are “separated” in different layers, and they will interact autonomously with a combination of both sharpness and blurriness.
- Isometric three-dimensional graphics: This is a method of visual representation of three-dimensional objects in two dimensions; objects are arranged using polygons or frames.

Submitted Forms of ARTISTIC DESIGN for an INTERACTIVE BOOK

PHOTOGRAPHIC	<ul style="list-style-type: none"> • <i>subject</i> • <i>documentary</i> • <i>author</i> • <i>combined</i>
VIDEOGRAPHICS	<ul style="list-style-type: none"> • <i>documentary</i> • <i>author</i> • <i>animation / animation</i>
Typography	<ul style="list-style-type: none"> • <i>classic</i> • <i>combined</i> • <i>static</i> • <i>temporary</i> • <i>Cartographic</i>
INFOGRAPHICS	<ul style="list-style-type: none"> • <i>static</i> • <i>temporary</i>

	<ul style="list-style-type: none"> • <i>cartographic</i> • <i>hierarchical</i> • <i>matrix</i> • <i>algorithmic</i> • <i>photographic</i> • <i>comparative</i> • <i>research</i>
ILLUSTRATION	<ul style="list-style-type: none"> • <i>manual (digitized)</i> • <i>digital (raster and vector)</i>
3D GRAPHICS	<ul style="list-style-type: none"> • <i>classic</i> • <i>combined</i> • <i>isometric three-dimensional</i>

Figure 1 - Techniques used for artistic design of an interactive book

The creation of a color environment in spatial-compositional solutions plays an important role, in the selection of exhibits, and giving them a certain meaning and emotional hue using a color code. Color in the exposure is regarded as a property of the spatial virtual form, characterized by three factors: hue, intensity and depth. Emphasizing on the contrasts, an additional illusion is created for depth, density and texture, which causes a variety of emotional sensations.

The artistic design of an interactive book using the cultural animation comes from creating a visitor with a certain positive mood, an increased sense of novelty and modernity. This exhibition environment creates both an impression situation and a communicative space.

All the traditional characteristics of an interactive book as a design product including functionality, originality, aesthetics, integrity, optimality represent the semantic shades of conceptuality, contextuality and communication.

An interactive book possesses the following social and communicative functions:

- 1) Creating a dialogue with the addressee: The form of an interactive book serves as a message sent from the media to the audience.
- 2) Establishing a relationship between the audience and the cultural tradition: The form and principles of the book as an object collects the cultural memory.
- 3) Creating an opportunity for viewer's communication with himself: The book actualizes certain aspects of the addressee's personality.
- 4) Creating a communication between the viewer and the exposure: For the designer-developer, and also the "reader", the interactive book acts as an independent intellectual education playing an active and independent role in the dialogue.
- 5) Making a connection between the virtual exposition, text and cultural context: An interactive book, like a cultural macrocosm, becomes more significant than itself acquiring the features of a cultural model, and at the same time tending to carry out an independent "behavior".

RESULTS and ANALYSIS

Here, the approaches used for project modeling of the graphic content are presented on the example of the interactive book entitled "Ulyanovsk Convent", developed under the supervision of the author of the paper in 2018, in collaboration with the creative team and the National Museum of the Komi Republic (Syktyvkar).

Based on historical data, goals and objectives, a scenario was formed using an animated interactive "journey" to acquaint the visitor with the history of the emergence and development of the Trinity-Stefano-Ulyanovsk monastery. Visitors were invited to visit an animated interactive tour of the Ulyanovsk monastery and its environs along with "stops" designed to introduce the historical references, interesting facts, useful information about a particular object.

The basis of the main type of program, or "input group", is a photo collage as it collects an image of the history of a place, consisting of semantic and visual parts (Figure 2).



Figure 2 - Screensaver of a multimedia interactive book "Ulyanovsk Convent"

In the “history” section, as well as the photo collage format, 32 objects were indicated, 13 of which were interactive. Active objects were indicated by a conventional sign, so that when the user clicks on it, the object increases in size, and a brief historical background appears (Fig. 3).

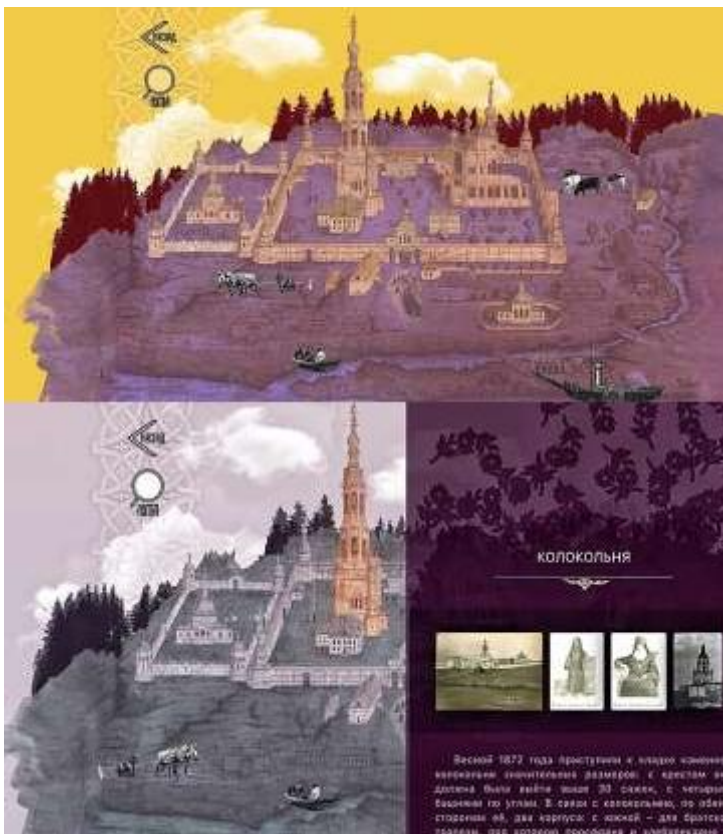


Figure 3 - An example of an interactive book entitled "Ulyanovsk monastery"

In addition, there were animated characters and objects on the map, also complemented by an informational “pop-up” window, where each object opens a certain page related to the monastery’s history, along with a given soundtrack.

Composition used to line up not only expresses a scientific idea, but also creates an aesthetic effect using the context of immersion.

The design of a multimedia book, in the context of displaying traditional culture, relies on the text, artifacts, and archival images to create a narrative. Designers selected a sufficient number of semantic and visual elements to successfully tell the story, and thereby attracting a focus group with different age and social status.

In designing this interactive book, the following techniques of artistic design were used: subject, documentary, author's combined photographs; animating; classical typography; digital illustration.

The following approaches are also defined for design modeling of the graphic content for the interactive book entitled "Ulyanovsk Convent":

- 1) Compositional: It included color and dramatic composition, linear arrangement of the composition, proportionality with respect to different types of screen;
- 2) Color: It is referred to color coding and color environment in accordance with the nature of the era and context, along with the author's rethinking of the events;
- 3) Typographic: Consisting of the laws of classical typography using the principles of adaptive layout; general infographics and navigation system (visual and sound).
- 4) Photographic: It is concerned with the use of digitized textures and textures corresponding to the historical context.

Thus, the interactive book entitled "Ulyanovsk Convent" developed in a form adapted for all ages narrated about the architectural monument and cultural and historical heritage of the Russian North in the format of a modern visual story.

CONCLUSION

So, primarily, the modern approach to design is searching for new connections between the viewers in process of mastering the objective world. Consequently, the task of designing is considered to be urgent, not just as a virtual exposition environment, but as a graphic content using a given integral common environment in which the relationship between a person and objects is spatial.

In design, passive \ static and interactive \ dynamic components can be combined to provide various levels of immersion in context and material.

This format is a new spectacular sign arousing the interest of the visitor, giving an unexpected visual perception due to the simulation of the sensual reflection of a specific space.

The design modeling of the graphic content for an interactive book includes: an exhibition artistic image; visual range; the formation of the theme, script and location of the cultural objects; decision on the composition of the cultural objects in a space to form a specific meaning; usability (UX / UI).

The design of the graphic content for a digital interactive book encompasses the formation of a two-way communicative environment, connecting cultural phenomena, uniting the past and the present on a single information platform. Graphic content creates a sense of belonging to historical cultural events, as well as an opportunity for their evaluation.

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