

TRANSMISSION OF INFORMATION AND COMMUNICATION THROUGH NEW MEDIA

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Abstract: This theoretical work deals with the multiplication and transmission of information in everyday digital communication, whose important factors, such as time and space, form the basic component of new media. By the method of textual analysis and interpretation, I will interpret hybrid artworks created by integrating different media, which enable their information, semantic and expansion in the virtual space. It's about the artworks and information systems based on the media capabilities of the Internet and screens / displays, which reflect the theory of Lev Manovich. who, speaking of new media and "overlapping windows", believes that new digital technologies help multiply information by speeding up communication.

Keywords: communication, media, art, information, time, screen, digital technologies, internet, perception, spatial editing, space.

Introduction

In the modern age, in the era of digital technologies, accelerated interpersonal communication, time plays a very important role for the recipient of information, it is important for him to "collect" as much information as possible for as little time as possible to spend. The space allows showing information that flows through time, and the Internet and similar digital networks allow simultaneous transfer of information to several mutually distant spaces. When it comes to contemporary art, digital technologies and their progress have accelerated the exchange of information and communication between the author-artwork(media)-audience. The author-artwork-audience relationship itself has been altered by the introduction of interfaces¹ and interactivity into artworks. This relationship has also been changed by the possibility of realizing a unitary artwork in several remote places at the same time, thanks to ISDN² technology. In modern communication, screens are especially prominent, which are today an indispensable part of life habits, business tools, art media.

Condition for the display and duration of information in new media

As already stated in the previous text, two important factors in the transmission of information through new media are the space of presentation and the time of duration of the information. Modern man tends to perceive as much information as possible for a little time spent, because in the modern world there is a general feeling of 'urgency and lack of time'. In accordance with the requirements of society towards accelerated communication, it is necessary to multiply information in an economical way using media and technological capabilities. The question is how to multiply as much information as possible within the viewing

¹ In computer science, an interface is a point of connection between two different and independent systems, through which they can communicate and act together.

² ISDN mean Integrated services digital network.

area in a little time spent? The second question would problematize the relationship between the internet and digital signal in the exchange of information within a art work that is performed simultaneously in two different places, creating a coherent whole. In order to better understand the *space-time* relationship, we first need to determine roughly what time is.

Time

Of all living beings, time is important only for human being, who invented it, and who is constantly in it, between memories, hopes and measurements. As is known in human civilization, everything in the world exists not only "in a certain space, but also in a certain time"¹(Gotthold Lessing,E.1900.p.103). In order to understand what time is, various ontological questions related to time have been considered throughout history. Rudolf Arnheim , starting from the idea of gestalt psychology, argues that the time experience is always based on some connection with the change that occurs in space(Arnheim,R. 1962.p.210.). Logically,The next question is what makes time? The most logical answer would be that consciousness creates time, because time beyond human experience does not exist. It is not rare that we attribute the properties of time to space, because time is read over space and vice versa. Literary critic and theorist Mikhail Bakhtin starts from the understanding that "the features of time are revealed in space, and space is understood and measured by time" (Bahtin,M.1989.p.324). Bakhtin uses the term chronotop (time-space), which he took from scientific disciplines. Bakhtin uses the term chronotop (time-space), which he took from scientific disciplines. The concept of *space-time*, which represents their essential and unbreakable unity, reflects its main characteristics in the information media (TV, internet), video games, as well as in art: polyltimedia arts, interactive installations,performing arts, video, film. That in the new media and their representative – the film, time without space cannot exist is also indicated by the fact that they exist in parallel, "one expresses the other, one reads to the other in every tiniest part of the film" (Peterlić,A.1976. p.20.).

Space

For the difference to the phenomenon of time, space as one of the main physical concepts is easier to define than time, and the only definition that seems most logical to us is that space is "an abstract, conceptual, logical and mathematical category that describes the position of things, the relationship between things and the whole of possible relations of things"(Šuvaković, M.2005, p.519.) In audio-visual media, we distinguish two types of space:

- Virtual space - presentation space, imaginary, symbolic space
- Concrete space - occupied and in which there is a work / screen, TV, mobile phone

Perspective and polyperspective

Perspective is a point of view, a way of looking. Throughout history, different types of perspectives have been used: vertical, linear, reverse, semantic, aerial, coloristic, polyperspectives. For the difference to aforementioned types of perspectives in which an artist /media producer represents a spatial reality seen from a single point of view, a polyperspective is a simultaneous representation of an object or character from several different angles. At the beginning of the twentieth century, the artistic movement Cubism, made a major turning point in the perception of the artwork, breaking the main convention-point of observation. The image received several observation points, which means that one figure was deconstructed and depicted from different angles, that is, different points of view. Cubism is significant because it introduced another innovation, and that is the technique of collage, which will be widely applied over time in literature, music, theater, film³, video, television shows, photography, etc.

³ From the technique of collage came film editing.

Dynamic screen

New media theorist Lev Manovich, in his book 'The Language of New Media', claims that the screen has been used for centuries to display visual information – from Renaissance images to film in the twentieth century. Today, connected to a computer, the screen is very much becoming the main means of accessing any information. People use the screen to read newspapers, watch movies, talk to friends, and most importantly, to work with it (Manovich, L. 2015.p.136.). As Manovich further claims, the screen frame separates two different spaces, which, nevertheless, somehow coexist. This is what in the most general sense determines its "classic screen". It is a flat rectangular surface. It acts as a window into another space. Such a definition describes well the Renaissance image and the modern computer screen (Manovich, L. 2015.p.137.). Manovich claims that for the last hundred years, a new form of screen has become popular, which he called a "dynamic screen". This new screen retained all the properties of the classic, but it also brought something new: it was able to display an image that was changing in time. It was a screen of film, television, video. "Instead of being a neutral means of displaying information, the screen is aggressive. It filters, screens, downloads, and cancels anything outside its scope" (Manovich, L. 2015.p.137). This statement of Manovich in the best way confirms the thesis of Marshall McLuhan that "the media is not only a transmitter of the message, but that the media itself is a message!" (McLuhan, M. 1971.pp. 41-59.). A computer screen, instead of displaying a single image, usually displays multiple simultaneous windows with multiple images inside them. The simultaneous presence of multiple overlapping windows is the basic principle of a modern user graphical interface⁴. As Manovich points out, the elements of all modern computer interfaces are 'overlapping windows', shaped as 'variable-size frames within which data is displayed, are arranged side by side, in a bundle that resembles a bundle of paper on a desk. Since it is possible to "open" them in almost unlimited numbers at the same time, the fact of the physical size of the computer screen is nullified and it enters an infinite virtual space that allows manipulation of almost as unlimited amount of data" (Manovich, M. 2001. p. 200. p.65.).

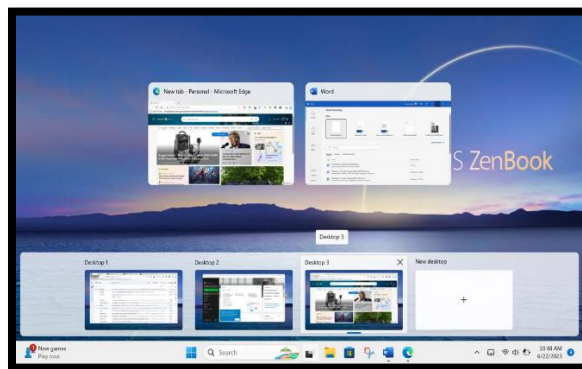


Figure 1 Overlapping windows and spatial editing

Spatial editing and polymorphic screen

New media theorist Lev Manovich, in his book Metamedia, speaking about montage and new information technologies, states that the two basic types of film montage in the XX century are "time montage"

⁴ A graphical user interface (GUI) is a way of interacting with a computer or other electronic devices, using graphical elements such as windows, icons, and menus, instead of text commands.

and "spatial montage", which he calls montage within the frame (split screen). Time editing allows the process of switching images: one after another, in a time series. This prefabricated technique is widely used, it is the most widely used in practice. According to Manovich, time editing is no longer a sufficiently effective method, because "presenting any additional information requires a certain amount of observation time, which slows down communication" (Manovich, L. 2001, pp. 65–67.). Another type of montage, which Manovich considers more efficient, is spatial montage and it involves the coexistence of different scenes within the same frame, the use of split screen (which appeared back in 1908), multiple exposure technique, as well as the use of multiple screens. Manovich believes that for this reason it is no coincidence that the film avant-gardes of the early XX century, guided by the "technical ideal of efficiency", experimented with the aim of filling the screen with as much information as possible at the same time" (Manovich, L. 2001, pp. 65–67.). However, Heidegger also reminded that "technique does not exist only where technical instruments are used, but that it is more universal, and problematic there is already where all perception, thinking and action are technically structured" (Velš, V. 2000, p. 234.). Speaking about new digital technologies and their capabilities, Manovich believes that new digital technologies support "spatial assembly", that multiple frames offer a narrative path, where "assembly in time" is no longer privileged over assembly in space (Manovich, L. 2001, p. 326). The realization of spatial montage/editing was once an expensive and complex process of film processing, which is why this technique was only used fragmentarily, while nowadays, using digital technologies, the process of creating this form is cheaper and more accessible to artists and media experts. In modern times, spatial editing using a polymorphic screen is no longer a privilege of filmmakers, but a technique that is widely used in everyday life: computers, video games, television shows, Internet video calls, online transmissions, web presentations and the like. The use of spatial editing is significant, because we live in an "accelerated" age, so this type of editing speeds up communication, because it gives a simultaneous display of a multitude of information within a unified display space.



Figure 2 Television news with spatial editing/montage (split screen)

Using a polymorphic screen⁵, it is possible to show the same scenes seen from several different perceptual points - which opens up new visual and aesthetic possibilities for information. The expansion of the image within the frame does not imply the physical expansion of the dimensions of the image, but by means of editing within the frame, the information space is expanded virtually. A polymorphic screen (split screen) is a medium whose capabilities are great and which has the power to dynamically display temporal and spatial simultaneity, the ability to directly compare (compare) two or more displayed objects / events (Lutovac S., & Besevic Gajic B. 2024, pp 45-51.).

"The boundaries of space and time will be erased by the possibilities of a polymorphic screen that adds, creates and multiplies the image as desired by the creator or as artistic reasons require. The

⁵ A polymorphic screen is a screen that is divided into several smaller spaces (windows, squares), where the same or different scene is displayed inside each of them. This term was first used by Abel Gance (1927).

omnipresence of the action. The omnipresence of time and age. The past, present, and future merge into their own destruction” (Angel H. 1962, pp18). The polymorphic display allows visual analysis of the work, the establishment of a visual collage, a cinematic embodiment of cubist principles. - and what is perhaps the most significant - the analysis of facts from several different points of observation (Lutovac,S.2020.p135.).

Digital film

The first digital film made in history was *Timecode* (2000), by Mike Figgis, based on the tradition of cubists and impressionists. Thinking about how and in what way they could change the conventions of the film, which relate to the perception (point of view), narrative and its fixed amount of information in time, Figgis realized, as well as his predecessors (Abel Gance, Peter Greenaway) that he could only achieve this through the screening space, because "every space that the film shows him corresponds to some of his local time"(Peterlić, A, 1976.p.162), which implies the organization and breakdown of time by spatial coordinates. In order to succeed in his intention, Mike Figgis used a polymorphic screen in the realization of his narrative feature film *Timecode* (2000) – a split-screen and spatial editing technique, which was discussed in more detail in the previous text. This film, shot with four connected patented cameras in a continuous shot, simultaneously shows four interconnected stories that permeate. At all times, one of the parts of the screen is perceptually "privileged" by the volume of the spoken part of the script, which emphasizes more important narrative activities, sets that part of the screen apart from other parts, and its role is to create a narrative with a visual action, as well as to create a collage of images with its stage space (Lutovac,S.2020.pp 29-31).



Figure 3 *Timecode*(2000), spatial montage/editing (split screen)

The resulting aesthetics adds to the documentary style that strives for immediacy. In this film, shot with multiple cameras and in one continuous long shot that represents the real duration of the scene, it is evident the omission of prefabricated punctuation, cuts, thanks to the application of the technique of split screen (spatial editing). By expanding information using the space of multiple screen frames, Figgis actually synthesizes more virtual spaces within the screen space and the unified duration of the film, where stimulating audio-visual perception, and multiplying information, performs the economics of time. The duration of this digital film is 1 hour x 37 minutes, and if we were to project four simultaneous stories of this film in a conventional way, one after the other in a successive sequence - on a non-polymorphic screen - we would need four times more time (4 hours x 37 min).

Internet and digital network

The internet has been ambivalent since its inception: it offers a lot of data, but it is often unreliable; it enables fast communication, but with problematic privacy protections; it saves our time when we use it as a

shortcut to information, but it takes it away when the flow of information is slowed down by a bad signal or other unfavorable factors.

The term ISDN (Integrated Services Digital Network), we can understand as a digital upgrade of existing telephone lines, and its advantages are: two independent lines of high quality, much higher speed of data flow with the Internet and many others. This technology is not the latest. It was created in the late 1970s, but it certainly belongs to the system of new media and advanced technologies that is developing. The speed of the Internet and the transfer of information today is much higher, but thirty-three years ago to realize a complete work of art - which is networked by telematic technology, thanks to which it is performed simultaneously in two different and mutually distant spaces, all using a digital telephone network - was almost unthinkable. It is a telematic performance 'Telematic Dreaming' (1992).

Information transfer

For our research, the concept of process as an inseparable element of the new media experience in art is also important. Processing art follows the development of artistic theories and practices that have rejected the material object as the goal of artistic work and turned to the process as the main subject of interest of the artist. This development will lead from its beginnings, related to mobile and the introduction of the temporal dimension in spatial art, to interactive art after several decades. "The term interactive art serves as a determinant of a specific category of computer-supported works in which the interaction between a digital computer system and users/consumers takes place" (Kwastek, K. 2013. p.4). For this theoretical work, it is important to mention a hybrid multimedia artwork that summarizes always unrepeatable performance, the work process as an essential element of the artwork / action, interactivity as an imperative of visual changes and a digital telephone-internet signal that serves for fast and simultaneous transmission of information to mutually distant destinations - creating a special technological-media experience of the artwork. It is an interactive performance of Telematic Dreaming (1992). It was a art and telecommunication project by artist Paul Sermon in which the audience had to deal with two important aspects of telecommunication: physical presence and telepresence. Telematic Dreaming is an installation that exists within the ISDN digital telephone network. Two separate interfaces are located in separate locations, these interfaces in themselves are dynamic installations that function as customized video-conferencing systems. The artwork consisted of two identical beds placed in two different spaces (gallery). One bed is in an illuminated area and above it is set a camera whose image is transmitted through the digital telephone network ISDN to another darkened area, where through the video beam is projected on a bed identical to that in the illuminated space. The video beam in the darkened area is placed above the bed, in the same place as the camera in the illuminated area. In this way, the image of the bed in the illuminated space and the person lying in it was projected onto the bed in a distant darkened space. In this way, real-time interaction between two people in different geographically distant spaces is enabled. "Telematic Dreaming" deliberately plays with the ambiguous connotations of a bed as a telepresent projection surface. The psychological complexity of the object dissolves the geographical distance and technology involved in the complete ISDN installation.



Figure 4 Telematic dreaming (1992) achieved with ISDN digital signal

Later, in the Balkans, in 2000, music and stage performances of artists were realized using ISDN equipment. The first such spectacle was the Gibonni – HTisden Millennium Concert. During the performance of the concert, the singer and part of the band were in the city of Split, the main guitarist Vlatko Stefanovski, in Zagreb, and the rest of the music crew in Dubrovnik. With the help of digital technologies and new media, all spatio-temporal boundaries in communication are erased.

Conclusion

During the evolution of the consciousness of mankind, there is also an evolution in the perception and reception of information, as well as in the way of their presentation. Once a single screen with little information was enough, now we need one (or more) polymorphic screen with a lot of information that rapidly changes in a little time spent. Digital technologies and new media have flooded the world market, and the use of 'multiple overlapping windows' on screens is more than necessary in today's society, due to the speed of information exchange as well as the possibility of multiplying information within virtual spaces. Digital technologies and various forms of internet signals allow us to integrate, network, simultaneously perform and projection complex works of art, as well as transfer multiplied information over long distances, without breaking the main rule of performance - the unity of the whole.

Conflict of interests

The authors declare no conflict of interest.

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