

The author leaves the work for the reader to complete. S/he does not know exactly how it is going to be completed, but s/he knows that this work will remain his/her own, not someone else's, and at the end of this interpretative dialogue the work will still have the form designed by him/her, even if someone actualises it differently than s/he would do it him/herself. It is so because the possibilities offered by the author are already rationally organised, channelled and provided with directions indicating the way the work should be completed<sup>1</sup>.

This quote from Eco's *The Open Work* touches on two significant problems in the art of interactive media and hypertext, hence open, works. The first is connected to a route through a hypertextual tangle of a work of art, the second is related to signposts placed along this route by the artist, in the way allowing the interactor to find an individual solution – if it exists. However, an interactive work of art can be also only an interactive projection of dynamic images, aiming to create an aesthetic impression.

It is beyond doubt that the interactor's journey down a “hypertextual route” is in its nature individual, even if it is only one, chosen and repeated route out of a limited number of combinations. Such “hypertextual route”, writes Piotr Sitariski, “should be understood as a dynamic frame of meaning production. In interactive media, the final form of a text is recorded, and this recording is an outcome of the user's navigation, leaving a permanent trace”<sup>2</sup>.

The text, a notion from studies of communication, has a wider meaning than just the traditional linguistic one. The notion of text has become useful in areas outside linguistics, often areas of non-linguistic creativity. The most general

conception of text defines it as a “frame of meaning production”, therefore just “something to be read”<sup>3</sup>. The notion is constantly expanding and nowadays refers to cultural practices, rituals, modes of dress, behaviour, and also textual “products”, such as TV programs or advertisements. The text can be also seen in a dynamic context, which is particularly important as far as interactivity is concerned.

The notion of hypertext is not distant from the notion of text itself, as it is a method of discourse organisation. Andrzej R. Mochola writes: “hypertext is a one and many texts at the same time. One of its obvious features is its textual character”<sup>4</sup>. In the hypertext, the text is often referred to as “metalexia”, a set of lexias<sup>5</sup>. A lexia is a unit of hypertext division. In fact, this notion refers to both hypertext and text, as it comes from the latter one. A literary text is symbolically divided into closed fragments: each portion of meaning is made up of words and sentences, and, when it is read, there follows a moment's pause and distraction, which link the fragment with other portions of the text<sup>6</sup>. Hypertext lexias in the electronic environment are not arbitrary sequences; they become physically existent dynamic open portions of a text, followed by a link leading from one to another. The author creates open lexias. The reader, creating a context in the process of navigation, closes them when he leaves them behind. The number of lexias and density of links between them undoubtedly affect the work's degree of interactivity, but not necessarily its attractiveness. However, it

<sup>3</sup> Ibidem, p. 100.

<sup>4</sup> A. Mochola, *Dyskretny urok hipertekstualizmu*. From [www.techsty.art.pl/magazyn/mochola/rozmowaindex.htm](http://www.techsty.art.pl/magazyn/mochola/rozmowaindex.htm) (20.07.2004).

<sup>5</sup> Ibidem.

<sup>6</sup> This is Roland Barthes's notion concerning printed literature, borrowed for hypertext analysis. Before the idea of hypertext found its realisation in electronic media, there were attempts to realise it in traditional literature. Printed novels of the hypertext structure are called protohypertexts. The ones that are close to today's hypertexts include Milorad Pavić's *Dictionary of the Khazars* or Marc Saporta's *Composition No. 1*, published in the form of a stack of loose paper sheets arranged in a box like a pack of cards. See [www.techsty.art.pl/hipertekst/protohipertekst.htm](http://www.techsty.art.pl/hipertekst/protohipertekst.htm) (25.07.2004).

\* The notion taken from P. Virilio; see P. Virilio and Catherine David, *Ślepe pole sztuki*. From [www.magazynsztuki.home.pl/globalizacja/virilio\\_davis.htm](http://www.magazynsztuki.home.pl/globalizacja/virilio_davis.htm) (17.07.2004).

<sup>1</sup> U. Eco, *Dzieło otwarte* [*The Open Work*], Warszawa 1973, p. 52.

<sup>2</sup> P. Sitariski, *Rozmowa z cyfrowym cieniem. Model komunikacyjny w rzeczywistości wirtualnej*, Kraków 2002, p. 103.

definitely modifies communication. Although the text possesses great abilities of self-cohesion, lexias which are too minute destroy it, turning it into contextless information. Heim compares such multidimensional text to crystals with countless sides, the words and phrases of which can be turned and viewed from any point, but will still make up the same text. According to him, divisions, layers and connections between phrases and words lead to continuous textuality, and the reader begins to link those phrases and words in an intuitive and associative way<sup>7</sup>.

A hypertext's readability depends largely on its author's assumptions and the way it is put together: its lexias, links, bookmarks. The development of digital technology, evolution of the Internet, and economy inspire attempts to systematise and define the structure of hypertext. A precise description of this structure is obviously impossible, for, apart from the constant evolution of digital technologies and artists' inventiveness, the hypertext contains many complex and still undefined elements. It is also difficult to devise a language capable of describing it, as the hypertext involves mathematical and abstract phenomena, which have no names in the language of the humanities. Mark Bernstein specifies the following most popular hypertext patterns: cycle, outline, mirror worlds, tanglement, sieves, montage<sup>8</sup>. In the cycle, the interactor proceeds from the first lexia to the next, and then back again to the first one in order to take another route. Coming back to the first lexia is a repetition, which makes this lexia the key one. The place where cycles overlap, Bernstein describes as the outline. The outline allows the reader to enter different cycles from one place. Mirror worlds is a mode of parallel narration from two different sources. The tanglement leaves the initiative to the interactor and does not give any directions, and from every place there is a passage to every other one. The sieves are multi-layered trees leading through the work to some concrete sequence. In the montage, each sequence appears in a new window on the screen and remains active and individual, although it is connected all the rest. The hyperlink is a material form of a reference mark, a place where lexias abut. It should make a fluent passage between text fragments. It is a place where the text diverges and a moment of choice for the interactor. The bookmark, if used, is a way of stopping the lexia when one wishes and often makes it easier to navigate the text, as it contains links to various fragments<sup>9</sup>.

<sup>7</sup> M. Heim, *The Metaphysics of Virtual Reality*, discussed in J. Lubiak, *Interfejs – człowiek versus maszyna*, Kwartalnik Filmowy 2001, No. 35–36, p. 194.

<sup>8</sup> M. Bernstein, *Wzorce hipertekstów*. From [www.techsty.art.pl/magazyn/bernstein/bernstein.htm](http://www.techsty.art.pl/magazyn/bernstein/bernstein.htm) (25.07.2004).

<sup>9</sup> Ibidem.

The hypertext space, in whatever fashion it is arranged, may not exist without directions, specified ways of moving about in it. The interface, a multi-layered communication with the work of art through a digital medium, makes interaction possible. The interface cannot be excluded from hypertext analysis. In interactive media art, there are often attempts to “minimalise” or hide the interface, usually in order to achieve the most fluent passage between virtual and real reality, a gentle immersion. It is convergent with the direction of digital technology development – from the computer as a word processor and communication device to a virtual reality machine<sup>10</sup>. The objective of the CAVE project is to make the interface dispensable – the interactor physically enters its space and the projection reacts to his/her movements<sup>11</sup>. Other types of modified interfaces are Head-Mounted Displays, VR gloves or cyber suits, but here the body still remains as if separated from the mind, inactive and controlled by the machine<sup>12</sup>. This difference significantly changes the man – machine relation and pronounces the role of an adequately structured interface. The interface organises the sphere of being. A passage into cyberspace is connected to leaving one's body. Heim calls it an “ontological shift”<sup>13</sup>. In his theory, cyberspace, instead of getting into one's mind, draws the mind out, separates it from the body. Absence of the interface may intensify this process. A “safe” virtual reality retains the unity of body and mind.

Interface boundaries are impossible to be precisely drawn, but the interactor always distinctly feels them. It happens also because s/he has to learn how to communicate with a work through the interface. Mirosław Rogala, discussing interactivity, identifies the phenomenon he describes as a “learning curve”: “The learning curve is related to the difficulties in learning and/or the time necessary to understand how to interact with a given work and how to interpret the interface”<sup>14</sup>. Understanding of basic principles of the program which “produces” the hypertext space is a condition which needs to be met if interaction is to take place and the interactor is to create his/her own narration. Here, one should not overlook the role of coincidence, which will anyway dominate the interactor's choices. In descriptions of the interactor's narrative activity, there appears the notion of “logic of

<sup>10</sup> J. Lubiak, op.cit., p. 193.

<sup>11</sup> CAVE – *Computer Animated Virtual Environment* is a technology of immersion, in which graphic stations generate images and project them in the space of a cube made up of screens. The audio-visual projection reacts to body movements.

<sup>12</sup> J. Lubiak, op.cit., p. 202.

<sup>13</sup> M. Heim, op.cit., p. 194.

<sup>14</sup> M. Rogala, *Doświadczenie sztuki interaktywnej*, [in:] M. Rogala, *Gesty wolności. Prace z lat 1975–2000*, ed. by R.W. Kluszczynski, Warszawa 2001, p. 193.

dreams”<sup>15</sup>. This intuitive, associative nature of the interactor’s choices does not matter a great deal, as his/her narrative activity does not have to, or even should not, be identical with narrative ideas of the hypertext’s author. Obviously, the interactor develops the narration according to the author’s directions, which I earlier referred to as signposts, and is obliged to observe certain rules laid down by the creator of the virtual environment, but still his/her actions should remain unpredictable to the author. Rogala writes also about the technique of “dynamic mapping”, which leads to system modifications, disturbing the rhythm of repetitions<sup>16</sup>. It means that the same actions by the interactor repeated several times do not have the same results. “Dynamic mapping” strengthens the element of accidentality, enforces the interactor’s concentration and often makes it necessary for him/her to reconsider the logic of the work.

Here it is time to focus on the consciousness of the interactive art recipient. As I mentioned earlier, an interactive work in the form of hypertext may exist merely as a dynamic audio-visual projection, without any deeper meaning. Such works should not be depreciated. Digitally constructed image and sound captivates the viewer with the beauty of images and sounds and teaches him/her to create their own hypertext routes. One can say that interactivity is a value in itself, and it is undoubtedly a sign of the times. There appear even shy theories maintaining that hypertextualism is going to become a major cultural trend in the future. It is interesting to see how the viewer changes into the interactor, and contemplative, passive attitudes change into an active stance of the recipient who creates his/her own narration and route through the hypertext. This activeness of contemporary recipients has its source in long processes in art, starting from the experiments of the 1960s: procesual art, happening, conceptual art, Fluxus, techno-art, kinetic art, and others, which permanently changed recipients’ attitudes towards art. The viewer has become more active, often interfering with the structure of an artefact or even taking over some of the author’s prerogatives<sup>17</sup>. Cable TV and the development of digital technologies hastened this process and thanks to them today’s recipient is prepared to respond to and find his/her way in a hypertextual space.

There are certain dangers resulting from the process of digitalisation, related to how it affects human thinking, natural language, and perception of images and so of the whole world.

I already mentioned so-called “ontological shift”, which takes place when one enters cyberspace. Another effect of cyberspace environment is that the descriptive logic of natural language is substituted by a logic of symbols and mathematics<sup>18</sup>. The interactor has to adjust his/her actions to computer requirements and accept abstract relations and artificial structures. George Boole writes that this abstract language of symbols changes our relation to natural language, for it does not refer to reality<sup>19</sup>. However, it must be said that the continuous development of computer systems and interfaces facilitate our communication with digital machines and this communication is getting closer to the “natural” one. Even if the abstract language of symbols has no reference to reality, it has virtual designata, and they, in turn, may refer to objects in reality. Piotr Sitarski describes this process as “interface fictionalisation”<sup>20</sup>. It consists in ascribing concrete material equivalents to abstract computer actions, which is an extended process connected to popularisation of computer systems, especially as far as interfaces are concerned. It is easily visible in the career of the popular Windows system, which began from a graphic interface. Icons were employed for communication with the machine in the process of so-called interface visualisation<sup>21</sup>. Signs, which were initially very arbitrary, gradually began to imitate real objects and activities thanks to animations and sounds or the option of voice communication with the machine. The experience of complete illusion is undoubtedly what virtual reality creators desire and the readers expect. This desire brings virtual reality closer to reality in general, as its goal is to efface boundaries between the two realms.

It is hard to determine where exactly virtual reality begins, just as it is difficult to precisely establish the boundary, the interface. Certainly, immersion is related to live projection and the time when it actually takes place. Here appears another significant value – the speed of data transfer. Earlier, according to Heim’s theory, I separated two functions of the computer: a word processor and communication device and a virtual reality device. This division might be seen as artificial, but it emphasises some additional values included in the latter function. Immersion requires specific conditions, an intensification of illusion and real time in which it happens. G. Skirrow in his analysis of video games writes: “it is about overcoming a crisis”, because “crisis happens always now, in

<sup>15</sup> The notion taken from M. Amerika, *Świadomość hipertekstualna*. From [www.techsty.art.pl/amerika/amerika.htm](http://www.techsty.art.pl/amerika/amerika.htm) (25.07.1007).

<sup>16</sup> M. Rogala, op.cit., p. 41.

<sup>17</sup> R. W. Kluszczyński, *Spółczesność Informacyjna. Cyberkultura. Sztuka multimediów*, Kraków 2001, p. 102.

<sup>18</sup> George Boole’s theory; see: J. Lubiak, op.cit., p. 192.

<sup>19</sup> Ibidem, p. 193.

<sup>20</sup> P. Sitarski, *Terminalne obrazy*, [In:] *Intermedialność w kulturze końca XX wieku*, A. Gwóźdź and S. Krzemień-Ojak (eds.), Białystok 1998, p. 235.

<sup>21</sup> Ibidem, p. 236.

real time, live. There is no retrospect or looking into the future. The game happens in the present time and relates to reality through the person of the player<sup>22</sup>. It is similar with interactive works of art and narration composed by the interactor. This narration happens in real time. The interactive media artist creates virtual space for the shape, structure and look of which s/he is responsible, and if any narration is developed, s/he is responsible for it as well. But most often, as Sitarski writes, s/he “is visible through the lack of narration, through the existence of a world in which “nothing happens”, which just exists<sup>23</sup>. S/he constructs a “virtual creation”, hypertextual space suspended in time, which belongs to him/her up to this moment<sup>24</sup>.

In this moment the role of the author practically comes to an end, and then the interactor in the process of interaction brings the work into existence, but only for the brief while when s/he is interacting with the work. Both the author and the interactor are aware of transience of their actions; maybe it is all about emission and reception of sensations, the process of communication. Paul Virilio writes of delocalisation of art, a process leading to dematerialization of art<sup>25</sup>. On the basis of the history of art, Virilio points out that it has gradually disposed of permanent and material media localised in concrete places. Beginning with cave paintings and frescoes belonging to certain places, through easel paintings, which could be moved around, through photographic reproductions or CD-ROM, which are still material, to interactive art, which, according to him, is the ultimate delocalisation – an instantaneous exchange in virtual reality, the “feedback”<sup>26</sup>.

As I said earlier, it is possible in interactive media to record the final form of a text formed in the process of navigation – the interactor’s narration. However, it is not the final form of a work, or its only form. It is one of the routes, chosen by one of its interactors, while any other may create another individual form. This openness and diversity of the interactive work’s structures is a big advantage. The interactor’s involvement in creating a work of art reinforces his/her emotional attitude towards it and personalises the process of communication. And the language of art is a system of communication.

There is still the question, to what extent the artist confers his/her control over the work on the recipient. Eco writes: “The

work is open, but only within the limits of certain extent of relations”<sup>27</sup>. It would be good to begin by saying that the artist works outside the text, while the interactor – inside it. Apart from some specific cases, all out-text actions by the interactor lead to destruction of the work, which does not fundamentally affect its form (e.g. adding one’s own text in a book should be treated as destruction, not modification of the original text, and it does not change the form of the work even if, like a misprint, occurs in all copies). Similarly, a viewer’s behaviour in the cinema does not affect the film. The artist and the interactor work on different, mutually inaccessible levels. The author has no control over the course of the interactor’s hypertext route. However, the freedom of the interactor’s actions depends on the possibilities and limits designed by the author. Artists are unwilling to hand the power over their work over to recipients, and that is why interaction is often only specious and the viewer is involved into a game in which the odds are not even. Nevertheless, it is necessary here to distinguish an interactive work of art from interactive entertainment, computer games. In art, this kind of “abuse” may be a deliberate and justified step serving the interpretative potential of the work. Also, motor activity of the interactor and his/her presence in the space of a work of art can be included in the work’s structure. Interactive media artists frequently use the image of the recipient as an element of their work, for example, in the form of direct video camera transmission. Many interactive works of art require artistic, sometimes naive, expression from the interactor. This direct exchange, emission and reaction based on a greater or lesser degree on coincidence, becomes the fundamental value of interactive media art. Coincidence plays a significant role in it, just as the already mentioned multitude of layers and openness of textual structures of the work are to its advantage. There also exists certain magic of communication through digital machines.

We may leave aside the problem and dangers of dehumanisation and try to consider limits of the realm which opens to artistic activity thanks to advanced digital technologies, and how they change the character of this activity. Hypertext, cross-linking within a text is certainly not the outcome of this process for its beginnings are earlier, but digital media provided great opportunities for hypertext realisation and development. Binary notation allows gentle merging of various structures and their mutual transformation. This gives opportunities for combining different texts, media, discourses, and widens the scope of their influence upon each other. Andrzej Gwóźdź calls such forms “media hybrids”, and the digital process of their fluent transformations from one medium into

<sup>22</sup> Quote from G. Skirrow, *Pieknelna wizja: analiza gler wideo*. After A. Gwóźdź, *Obrazy i rzeczy*, Kraków 1997, p. 110.

<sup>23</sup> P. Sitarski, *Rozmowa z cyfrowym...*, p. 81.

<sup>24</sup> Here I leave aside the complicated question of joint authorship of a work of art, and concentrate on an individual author.

<sup>25</sup> P. Virilio, *op.cit.*

<sup>26</sup> *Ibidem*.

<sup>27</sup> U. Eco, *op.cit.*, p. 51.

another – “morphisation”<sup>28</sup>. This possibility to blend media structures in a “sterile” way exists only in digital technology and offers a possibility to create intermedia works of great diversity: “So it is not only literature beside film, but writing in film as well; not only paintings in film, but painting with computers, to such extent that there arises a new category of presented world – virtual reality,” writes A. Gwóźdź<sup>29</sup>. One can say that the hy-

pertext work is open not only in the context of interpretative dialogue, but also through its digital structure, which enables artists to combine various forms within various systems, which refers to both technology and culture (meeting of different formations of images). This exchange, “feedback” occurs in the field of communication between man and machine and at the boundary of various image, text, and discourse modalities.

<sup>28</sup> A. Gwóźdź, *Interfejsy widzialności*, [in:] *Intermedialność w kulturze końca XX wieku...*, p. 178.

<sup>29</sup> *Ibidem*.

Doświadczenia w sztuce interaktywnej  
Czyli homo experimentator  
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Wzrost i rozwój współczesnej sztuki w sposób niezaprzeczalny wiąże się z intermedialnością, rozumianą jako proces łączenia i przekształcania różnych form sztuki. W tym kontekście można mówić o sztuce interaktywnej, która wykorzystuje nowe technologie i media do tworzenia dzieł sztuki, które są w stanie zmieniać się w czasie i w zależności od interakcji z widzem. W tym artykule chcę przedstawić kilka przykładów sztuki interaktywnej i omówić jej rolę w sztuce współczesnej. W tym celu przeanalizuję kilka dzieł sztuki interaktywnej, które zostały stworzone w ostatnich latach. W tym celu przeanalizuję kilka dzieł sztuki interaktywnej, które zostały stworzone w ostatnich latach.

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