Some Peculiarities of Integrating Visual Literacy into the System of Modern Education

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Abstract: The study substantiates the importance of the application of visual literacy in the modern educational process in the era of dynamic development of information and digital technologies. The paper analyses their coming into everyday existence of society, which became a prerequisite for the formation of a digital person, Homo Digitalis. Having moved away from written culture, he was actively involved in the process of modern communication, which is mainly a culture of image and sound. In course of research the modern student is revealed to constantly use acquisition of the multimedia language of the screen, significantly complementing the textual educational content with visual images. The problems of modern education are described in the context of the potential of digital culture, where the student faces audio-visual environment. The assertion of digital socialization shapes a digital identity of Homo Digitalis, which independently creates and controls his own informal educational strategies, the implementation of which requires a new kind of literacy. Discovering the essence of the concept of literacy corresponding to its other narratives revealed the meaning and purpose of visual literacy. The importance of its separation is caused by the inherent for the digital society gap between verbal and visual cultures, the growth of experience of human interaction with the virtual environment. Visual literacy develops the ability to think and express thoughts through images. Furthermore, the knowledge that characterizes visually literate students is revealed, arguments in favour of the screen definition of visual literacy are distinguished, its standards are identified and analysed as well. The research findings prompt the conclusion that modern education should orient teachers and students to new ways and factors of the educational process, where visual literacy is highly ranked. Its active implementation provides prospects for further improvement of education and productive person's development.

Keywords: *visual culture, digital person, education, information technologies, knowledge, culture, visual literacy.*

1. Introduction

Man enters the world of sociality through the education system. The inclusion of information technology in all spheres of our daily life has posed to education the problem of students' adaptation to the conditions of the digital society. The digital education generated by this society is not limited to e-learning practices; moreover it is being institutionalized at a rapid rate. In recent decades, a global network of virtual universities has been created, which are open and offer tens of thousands of training courses to choose from. Coexisting with non-formal digital education institutions such as Udemy, MEP, EdEra and others, they widely advertise their services online, which are supported with student feedback (Kultaieva, 2020).

The expansion of digital education is caused by the emerging of the younger generation, which were born and raised in an era of a constant access to computers, email, and the Internet, and are called *Digital Natives* (Prensky, 2001). In the process of further development of information technology, and the penetration of *Digital Being* in everyday life, *Digital Natives* transformed into *Homo Digitalis* (Capurro, 2017, p. 11). Existing constantly in the virtual world, this person being separated from the real world, made a transition from written culture to the culture of verbal communication and visual images.

By joining the education system, a modern student as an emanation of *Homo Digitalis* gets into a network of interpersonal connections, the functional significance of likes, selfies, commercials, and visual clips. He is not satisfied with traditional forms of learning anymore, because his skills of digital exchange, as well as social experience, differ significantly from their guidelines. In particular, he is accustomed to existing in a complex audiovisual environment, i.e. listening to music while learning his lessons, watching various videos while doing his homework; he assimilates visual information more effectively than textual one, which causes 'growth of its visual selectivity and perception' (Ilina, 2018a, p. 318).

Analyzing the culture of perception of the modern student in the learning process, Finley (2014) identifies more than thirty basic forms of visual information, visuals, or key units of visual practices of today, which are used in education. Such visuals include advertisements, cartoons (including political cartoons), charts and graphs, collages, comic books and graphic novels, dioramas, diagrams and tables, memes, maps, multimodal texts (having more than one mode, such as print and image or print, image, sound and movement), pictograms, photos, signs, slide shows, symbols, storyboards, timelines, videos, and websites. Thus, visuals are a part of a

multimedia language of the screen that significantly complements printed textual educational content with visual images as epistemic elements.

The development of visualization strategies in the educational process is due to the influence of social discursiveness, as well as mental and cultural practices. They actualize the problem of visual literacy as a way of cognition and understanding the meanings of modern reality. Visual literacy is a world of "active eyes" that open the world to 'review and clarity in accordance with the goals of life, learning and cognition' (Shalashenko, 2015, p. 81).

The presented study focuses on the analysis of the essence of visual literacy, which, in our view, will help young people be productive in the field of modern educational services in the context of visual culture. Therefore, substantiating the need to include visual literacy in the educational process is a goal that unites the efforts of teachers of humanities and specialized disciplines, and also determines the prospects for the transition of educational practices to a new level that corresponds to statements of assertion of virtual reality along with visual-digital one, the substantial basis of which is the ability to see, perceive and think visually.

We believe that methodically well-arranged interdisciplinary bonds when integrating visual literacy in studying curriculum disciplines will both help bridge the gap between textual and visual assimilation of the material, and also contribute to the understanding of its content.

2. Research Methods / The main objective of the research

Solving the problem of introducing visual literacy in the educational practices in terms of information and digital culture involves first of all the development of methodological principles of visual studies, which includes general scientific methods of analysis, synthesis, proof, explanation, and interpretation. The application of the system methodology allowed generalizing the meanings of the concepts of visual culture and visual studies in their proportions and differences, which singled out the problem of visual literacy. Secondly, the discovery of the anthropological content of the theoretical construct of *Homo Digitalis* on the basis of the method of critical analysis helped determine the prospects for the development of visual literacy in the situation of digitalization of education and all sociocultural spheres of life. Thirdly, the method of comparative studies has shown a radical change in digital identities: if users try to experiment with social roles in the information environment in the early stages of digital culture, today there is a stabilization of digital identities, which are increasingly trying to

equate themselves with exemplary patterns and stereotypes of behaviour embedded in social networks, and, accordingly, in videos, video games and video clips, which have actually replaced the real world (Reckwitz, 2017).

Methodological reflections on defining the parameters of visual literacy become more complete as a result of the involvement of the visual vocabulary in learning, which originates from research on the representation of the visual in English studies, in which *visual* is the one related to vision; *visible* means visual objects, *visual navigation* means carried out only by sight, *vivid* is the one producing mental images, *visual aids* is the one that is relevant or uses visual aids and illustrative materials. In their context, the concepts of visual competence, visual practices, visual language, visual skills, and visual thinking were developed and acquired their meaning. Their understanding shows that images, videos, and visual perception are related to social visualization technologies, because speaking without words they carry implication that can have a significant amount of meaning and information (Ilyina, 2018b).

Consequently, the purpose of this study is determined by the influence of the heuristic potential of visual culture on the field of education creating tension in its locations, which sets the task to develop the concept of visual literacy, the creative content of which opens new opportunities for perception and use of visual images in the learning process, deepening the quality of training of the younger generation for communication and activities in global virtualization and digitalization of all spheres of civilization.

3. Literature review

Analysis of research on the problems of visualization has shown the existence of a number of publications in scientific journals and monographs, which cover the concept of visual literacy in different contexts. Thus, visually-oriented learning methods are determined by extensive research in the field of visual study. Mitchell (2005) uses this term to describe the process of combining art history, literary theory, and cultural practices, each of which developed along the lines of a "pictorial turn", which later came to be called a "visual turn".

Formed in the context of visual studies, the discourse of "visual culture" focuses on the dynamic process taking place between the visible and the viewer, between the observer and the visual artifact through media and information technology. The concept of "visual technology" is understood very broadly as 'any means of transmitting video information' (Bataeva,

2013, p. 7). Visual culture, which is a part of the field of visual study, is 'a new field in which the cultural construction of the visual in the arts, media and everyday life is studied' (Dikovitskaya, 2005, p. 1).

For Veen and Vrakking (2015), the digital generation grew up on computer games, the strategies of which enabled creating an infinite number of virtual identities, dividing any task into short stages and expecting psychological rewards for their passing through, focusing on involvement in the process instead of on success. They transfer these strategies to educational ones, and if the process of acquiring knowledge is not interesting, attention is not focused on this knowledge. Thus, the educational challenges arising from the gamification of the generation are the lack of self-sufficiency of knowledge as educational goals, the greater importance of involvement and communication in educational practices focused on visuality (Veen & Vrakking, 2015, pp. 22-28).

A number of studies have emphasized the fact that video games, in which children are involved from an early age, change the structure of children's brains and affect their thinking and learning. We are talking about the impact of digital technology on the child's brain and its ability to learn, which is associated with impaired memory and concentration, i.e., the cognitive abilities and sensory changes of the younger generation are changing. Therefore, similar strategies should be included in learning strategies, which include visualization (Moor et al., 2017, p. 116). Mastering the latter requires visual literacy as a specific condition for productive learning.

The semantic load of visual issues, which is part of the structure of modern cognitology, requires the analysis of philosophical and epistemological approaches in determining the prospects of intellectual and cognitive activity in proportion to the achievements of visual culture, which are increasingly used in modern educational practices. Substantiation of epistemological principles of visual culture gives grounds to talk about visual literacy as a way of new understanding of the world and a necessary component of education in the 21 century (Ilina, 2018b).

In the article *A Review of the Concept of Visual Literacy*, Avgerinou and Erikson (1997) show that this concept was first used by J. Debes, the American researcher and co-founder of the International Visual Literacy Association. He defined visual literacy as the visual competencies that a person can develop, and therefore they are 'fundamental to learning processes' (Avgerinou & Erikson, 1997, p. 280).

In the collection *Visual Literacy*, edited by Elkins (2008), leading researchers of visual studies highlighted a number of important issues such

as visual literacy and literate visuality, fundamental concepts of images in science, from visual literacy to image competence, art-centric learning and visual literacy, philosophical principles of visual multiculturalism in colleges, image as a cultural technology, visual literacy in action, the law in the age of images, and other issues as well. The book demonstrates a variety of approaches and topics that can be considered within the concept of visual literacy. Systematizing the materials presented in the collection, its editor divides them into two following parts: conceptualization (i.e. essays on the conceptualization of visual literacy and images outside art (research of visual practices in various spheres of life, such as science).

The problem of visual literacy as an important form of activation of the educational process in secondary and higher schools is seen by Kremen and Ilin (2020) as a transformation of traditional forms and methods of learning to the requirements of visual culture. Today, in the era of information and computer technology, 'visual literacy is gaining more and more influence and significance, as it demonstrates the transition to new pedagogical technologies' (Kremen & Ilin, 2020, p. 4).

Cherepovska (2014) focuses on the problem of implementing visual learning methods. She considers the importance of the problem of the contradiction between the growing amount of visual information and the active immersion of young people in the visual media consumption, on the one hand, and psychological unpreparedness and unformed individual media culture of the appropriate level of young generation, on the other hand. She believes that it is possible to facilitate the solution of this problem by introducing media educational and visual knowledge in educational institutions (Cherepovska, 2014, p. 5).

The implementation of this task will allow active including of visual literacy classes into educational activities, which will help young people productively engage in the reality of digital culture as a fundamental basis of modern education after rethinking video and media texts in the development of visual culture in the context of media reality.

4. Results and discussions

Productive person's self-determination in modern society cannot be fully implemented only against the background of the growing role of science and education in all spheres of life. It is necessary to consider new constitutive factors of knowledge production in modern conditions, aimed at 'discovering the world' (Vlieghe & Zamojski, 2019, p. 522). One of its distinguishing features is the growing influence of information and digital

technologies, which have become 'a technological environment in which subjects move' (Reckwitz, 2017, p. 237). What is its essence?

4.1. Features of digital ontology

Information technology, computers, and the Internet have created a new, digital culture where person's images are changing dramatically. They are 'the historical and cultural a priori of a common life world, which retains its validity in different societies, which are characterized by their own structural differentiation and cultural specificity' (Zichy, 2017, p. 20). The intrusion of information technology into everyday life changes both the conceptual foundations of the person's definition, his differentia specifica, and also his methodologically relevant image. It is based on a hybrid image of a new computer technology developer, blogger, and average digital user who surfs the net, makes contacts, eventually lives in virtual reality, or watches television and consumes media products. This synthesized image is referred to as Homo Digitalis. It captures the external characteristics of people of digital culture, who 'mechanically poke the marks on the screen of tablets or smartphones with their finger (Latin *digitalis* means both number and a finger)' (Kultaieva, 2020, p. 12).

As a result, personal experience, the process of knowledge interiorisation has been replaced by information surrogates, the simulacra, which create a person's false belief in his intellectual abilities. The experiences reproduced cease to be unique. Network or digital identity of a modern person is formed as part of a virtual mosaic, which mixes real and virtual existence. It is manifested in his self-presentation (on the popular social media platforms of Facebook, Twitter, Instagram, etc.), where self-knowledge is reduced to knowing his own selfie. It is noted that the 'philosophy of selfie is being formed within the framework of digital culture' (Gumbrecht, 2019, p. 42). The line between the creative process and information about it disappears in digital culture. In other words, Homo Digitalis possesses information, is a user of game strategies and visual images, and an effective communicator as well (Veen & Vrakking, 2015).

In this situation, relations with educational institutions, which are supposed to be coordination centers of human life in the information and digital age, are changing. Educational institutions, universities and schools are considered as separate institutions, relatively irrelevant to the daily life of a modern, digital person. In schools, digital natives show low concentration, want to control the processes in which they are involved, and do not show a desire to listen to the explanation of the world by the teacher. As a result, we have 'digital natives and analogue schools' (Veen & Vrakking, 2015, p. 10).

The digital person can no longer demonstrate his awareness and erudition to acquaintances and strangers, but focuses primarily on himself, practicing active narcissism through various computer platforms (Stettler, 2014). The ability to use digital technologies automatically elevates such a person above all others who have remained outside the new socio-cultural reality that emerges as a technological environment. Türcke (2019, p. 12) defines anthropological status of the person belonging to the world of digital culture through the concept of inclusion, while recalling that in Latin it means 'not only inclusion and involvement, but also imprisonment'.

Information about this status is fundamental to understanding the difference between true creativity and its imitations. After all, digital technologies change the model of self-identity inherent in late Modernism, subordinating it to a specific form of singularity. As a result, the person's uniqueness is constructed from various modules, and their composition determines his profile. The modular structure of the content and organization of modular education is consistent with the profile of the digital subject, also composed of modules. However, the requirement to 'transform pedagogical relations into relations between autonomous subjects is implemented here only in the form of simulation' (Kultaieva, 2020, p. 15).

At the same time, digital education is only trying to take its rightful place among traditional educational institutions in modern educational practices. According to Nida-Rümelin (2014, p. 69), 'modern education … is regulated and standardized almost everywhere. Elimination of regulation and standardization … will serve as a signal for the development of a cooperative and differentiated educational culture'. The development of a network of formal and informal digital education in combination with traditional methods and forms of learning opens new prospects for young people for life and professional self-realization. But how can these prospects be fulfilled?

4.2. Knowledge vs information: the problem of literacy in modern education

We consider the transition to new educational practices to be important for the productive implementation of the entering of the person of the digital culture era the world of modern knowledge. A modern student, being constantly in the network of interpersonal connections, is not satisfied with the traditional disciplinary forms of education, because his skills of digital information exchange, as well as socialization processes differ significantly. Representatives of this generation are constantly in certain information flows, under the pressure of visual images. The students are not

taught to cope with these challenges at school that is rather a place for their communication with friends than for learning, and a significant part of this communication is indirect occurring in social networks. Moreover, they are accustomed to solving problems in complex nonlinear information systems, which makes them multitasking, but does not develop the ability to focus on the consistent performance of linear tasks; existence in a complex audiovisual environment has become the norm; information noise, which accompanies them constantly and everywhere, directs to the perception of visual rather than textual information (Ilina, 2017).

Studies show that constant access to information from the Internet does not develop 'the ability to determine the quality of this information' (Moor et al., 2017, p. 116). Therefore, students need help in its processing. Moreover, the concepts of knowledge and information are far from being identical, distinguishing the ontological load of the first from the second, and consequently operating them in educational processes has become a problem of digital education.

The gap between visual and textual culture has become quite important. Before the digital revolution, education was based on texts. The modern digital generation perceives images more effectively, thus, the culture of the text is gradually being replaced by visual culture. Video games, in which children are involved from an early age, play a significant role in this process. For the digital generation, traditional educational institutions are no longer a form of preparation for a life where new technologies dominate, primarily meeting the needs of communication and entertainment. Moreover, these technologies are visualized; therefore, the educational gap is at the same time the gap between the text and the image, the word and the image. For the modern generation, digital socialization is leading, which forms the network identities of the digital generation. In turn, it independently produces and controls its own informal educational strategies aimed at personal formation and development. Literacy is needed to achieve this goal. But what kind of literacy is that?

Traditionally, the concept of literacy refers to the ability to read and write. However, nowadays, these basic functional skills are becoming insufficient and consequently the concept of literacy is expanding. The concept of literacy is being specified and applied to a number of important skills for a modern person. In particular, according to Mkandawire (2018, p. 40), 'the meaning of literacy becomes clearer when it is used alongside other concepts such as basic literacy, functional literacy, digital literacy, media literacy, computer literacy, medical literacy, and information literacy, as there is a context that clarifies it'. These contexts of the use of the concept of

literacy indicate that a person must have knowledge and be competent in certain specific areas of activity for successful socialization and productive life in modern society. Thus, if language literacy is defined only as basic one, then all of the above types of literacy provide a new educational context for socialization.

As a consequence of the growing influence of digital technologies on the learning process, the modern concept of literacy is gaining new meaning. The 21st Century Literacy Summit of The New Media Consortium (NMC, 2005) has shown that the key challenge the world faces today is to differentiate between education and literacy in the Net generation, which offers tremendous opportunities to gain instant and wide access to ideas and opinions, music, videos, etc. The issues from the field of media literacy, semiotics, iconography, visual cognition and the arts were discussed at the Summit. But the discussion discovered that there was a lack of concepts or theories that would help give appropriate definitions, taxonomies or ontologies to the questions asked. Therefore, the gathering provided the following working definition, '21st century literacy is the set of abilities and skills where aural, visual and digital literacy overlap. These include the ability to understand, recognize, and use the power of images and sounds, to manipulate and transform digital media, to distribute them pervasively, and to easily adapt them to new forms' (The New Media Consortium, 2005, p. 2). The change in the idea of literacy takes place, as basis for language literacy was traditionally unimodal and textual.

According to the report of the 21st Century Literacy Summit, other certain key characteristics of modern literacy are identified to be as follows: 1) multimodal, i.e. if traditional communication is mostly bilateral, then modern one is more often multilateral, group; 2) creative, i.e. it implies the ability to interpret, the ability to articulate and create ideas in the new forms; 3) innovative, i.e. learning a new grammar with its own rules of construction, capturing the impact of visual and other multimedia components on communication; 4) interactive, i.e. the language of literacy of the 21st century is aimed at interactive communication, promotes an important dimension of real-time immediacy; 5) media culture, i.e. it implies the ability to use the power of imagery and sound in the media to evoke an emotional response; the ability to understand, recognize and manipulate their effects on the imagination is at the heart of this new literacy; 6) the potential to transform the way we learn, i.e. the 21st century literacy gives young people the opportunity to gamify learning, to make it related to their interests and pleasurable (The New Media Consortium, 2005, p. 3).

The application of this literacy concept in the academic perspective is further developed in the educational report *Literacy in the Digital Age*. It suggests that the concept of literacy is being significantly modernized nowadays. The main specifics of 21st century education and important academic achievements are four key areas. Firstly, digital-age literacy includes the following components: basic literacy; scientific literacy; technological literacy; visual literacy; information literacy; cultural literacy; global awareness. Secondly, literacy involves inventive thinking, which focuses on adaptability, i.e. ability to manage complexity, curiosity, creativity, risk-taking, and also higher-order thinking and sound reasoning. Thirdly, literacy involves effective communication, which means teaming, collaboration, and interpersonal skills, personal and social responsibility, and also interactive communication. Fourthly, literacy involves high productivity highlighting ability to prioritize, plan, manage for results, effective use of real-world tools, and relevant, high-quality products as well (Lemke, 2002, p. 15).
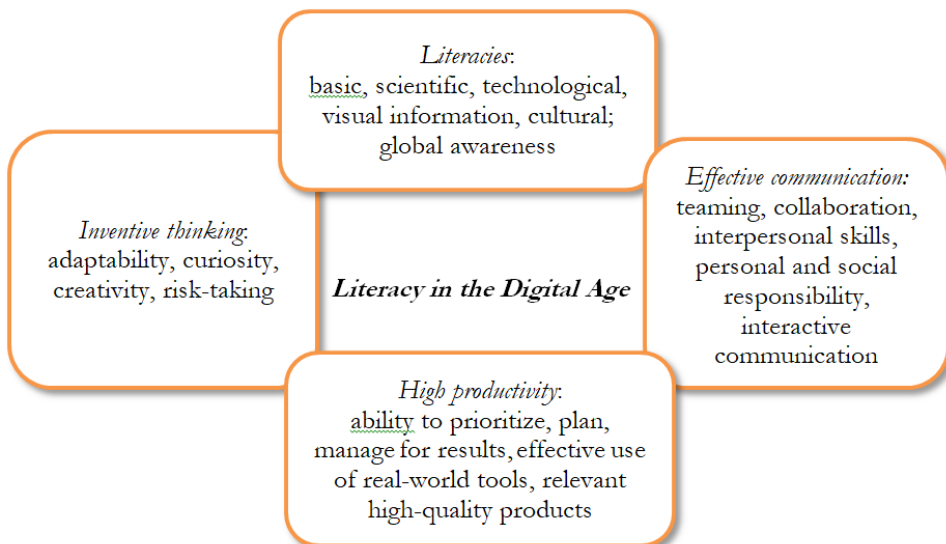
Figure. 1. The overview of the concept of literacy in the 21st century

We can assume that each of these types of literacy has its own history. But what is crucial for today's literacy?

4.3. The main distinguishing features of visual literacy

In modern educational practices, the issue of visual literacy involves primarily the ability to understand correctly the meanings of the visual. The relevance of visual literacy identification is determined by the specified gap between visual and verbal culture that is inherent in digital culture, as well as the growth of experience of person's interaction with virtual environments. The latter determine the factor that the digital identity of a modern person is formed as part of a virtual mixture of real and virtual being, blogs and subscriptions, video simulators and emoticons, and moments set aside for later in smartphone screens. Digital modernity in our imagination is a vertigo, a dizzying cycle of images (Ilina, 2017, p. 98).

In these images, along with a new way of vision, a new kind of imagination is developed. Analyzing this situation, Virilio highlights the results of supplementing the eye with means of technical reproduction. The French researcher says that, 'looking for means that allow us to see the invisible part of the universe better and more fully, we were one step away from losing … the ability to imagine it' (Virilio, 2004, p. 12). Thus, the imagination was a means of considering the invisible - something that is hidden from our view, and with the advent of optical prosthesis gradually lost its meaning. Today, the situation is changing as visual cultural patterns develop rapidly.

Braden and Hortin (1982, p. 7) consider visual literacy as 'the ability to understand and use images, including the ability to think, learn and express thoughts in images'.

Modern researchers analyzing the essence of visual literacy have developed its standards and principles (Hattwig et al., 2013). The framework for student visual literacy skills learning is shown in Table 1.

Table 1. Standards and principles of visual literacy

Standards	Principles
Determining the nature and extent of visual materials needed:	- defining and articulating the need for an image; - identifying a variety of image sources, materials, and types.
Finds and accessing needed images and visual media effectively and efficiently:	- selecting the most appropriate sources and retrieval systems for finding and accessing needed images and visual media; - conducting effective image searches; - acquiring and organizing images and source information.

Interpreting and analyzing the meanings of images and visual media:	- identifying information relevant to an image's meaning; - locating an image in its cultural, social, and historical context; - identifying the physical, technical, and design components of an image; - validating interpretation and analysis of images through discourse with others.
Evaluating images and their sources:	- evaluating the effectiveness and reliability of images as visual communications; - evaluating the aesthetic and technical characteristics of images; - evaluating textual information accompanying images; - making judgments about the reliability and accuracy of image sources.
Using images and visual media effectively:	- using images effectively for different purposes; - using technology effectively to work with images; - using problem solving, creativity, and experimentation to incorporate images into scholarly projects; - communicating effectively with and about images.
Designing and creating meaningful images and visual media:	- producing visual materials for a range of projects and scholarly uses; - using design strategies and creativity in image and visual media production; - using a variety of tools and technologies to produce images and visual media; - evaluating personally created visual products.
Understanding many of the ethical, legal, social, and economic issues surrounding the creation and use of images and visual media, and accessing and using materials ethically:	- understanding many of the ethical, legal, social, and economic issues surrounding images and visual media; - following ethical and legal best practices when accessing, using, and creating images; - citing images and visual media in papers, presentations, and projects.

(Source: Hattwig et al., 2013)

Therefore, modern education should focus on visual literacy as a new way and factor of learning. The visual orientation of modern educational and pedagogical practices is due to the development of information technology, which gives birth to screen, digital reality. The

development of visual literacy standards activates visual culture of thinking, visual competencies, and develops models of educational and pedagogical activity.

5. Conclusions

The development of information and digital technologies has resulted in digital culture represented by Homo Digitalis. Its ontological characteristic is constant renewal of its image in accordance with political and intellectual trends. By the existence, Homo Digitalis demonstrates substituting knowledge with information, which is of fundamental importance for distinguishing between actual creativity and its imitation, between the visual and textual culture of learning and cognition. For the digital generation, traditional educational institutions no longer perform the function of preparing for a life in which new values dominate on the basis of information and visualized technologies. In order to develop the modern personality efficiently, both the abilities to read and write, and also a new, visual literacy, which presupposes a new context of educational socialization, are necessary. Visual literacy includes the ability to understand, recognize, and use images and sounds, to manipulate, transform, and spread digital media everywhere, and to adapt them to new forms of social life. The introduction of visual literacy in the learning process develops a new kind of imagination, the ability to understand, think and express ideas and thoughts in images. Visual literacy also appears as a new learning achievement orienting education towards new visual forms, standards, and principles of learning.

Providing education for the new generation, it is necessary to reckon educational practices that meet the demands of the digital age. It is important to integrate active and problem-oriented learning into the educational process, to help students find answers in the ocean of information, to receive constant feedback from students, and to develop their creativity on the basis of visual literacy. Study of the quality of modern educational strategies in the context of development of visual culture is a perspective direction for the further research of a problem of visual literacy.

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