

# Teaching Cyberpsychology: Today and Tomorrow

Alexander Voiskounsky<sup>a</sup>

<sup>a</sup> Moscow Lomonosov State University, 11 Mokhovaya St., Moscow, 125009, Russia

## Abstract

Internet psychology, or cyberpsychology, while only rarely recognized as a special discipline within psychology, is nevertheless acquiring popularity among students; actual existence of this popularity is a good enough reason to start teaching cyberpsychology for those educationalists who are highly sensitive to the needs of knowledge consumers. Due to such a demand, over a dozen world-wide universities are suggesting programs aiming at learning and getting a degree (most often, Master's) in cyberpsychology. It is more than likely that the number of such educational programs will be rapidly growing in the nearest future. Thus, the time has come to start discussions related to particular ways of teaching cyberpsychology first to psychology students, and probably second, to computer science students as well.

The paper includes a brief review of the impact of digital technologies on human beings' personality and cognitive processes. Diverse views on the likely risks related to such an impact are mentioned, as well as organizational measures targeted to lessen the risks. Among other points of view, the well-known Socrates' argumentation is discussed: the ancient thinker believed that human memory loses a lot in its functioning with the advance of alphabet and writing. On the contrary, Vygotskian psychology states that sign systems such as alphabet, as well as much more sophisticated semiotic theories lead human mnemonic mechanisms to enrichment and psychologically useful transformations.

After it has been stated that the views on the usefulness of digital technologies for functioning of human brain and psychic processes are differing, it is once again concluded that the whole content related to cyberpsychology is highly actual. In fact the cyberpsychology classes are already taught in diverse universities; the pioneers are several Irish and British universities. A few universities in Russia have opened such programs as well. The currently available textbooks are briefly analyzed in the paper: particular positive provisions in these textbooks are discussed. Finally, public attention was drawn to the non-numerous ways of teaching cyberpsychology at the bachelor' and master's levels.

## Keywords

Cyberpsychology, teaching, Google effect, psychological impact, risks, human-computer interaction, cyberpsychology in Russia, teaching cyberpsychology world-wide

## 1. Introduction

The impact of digital technologies on human beings' cognitive processes is undeniable. Not everyone accepts this fact optimistically; concerns are more common. For example, critically minded experts have not once argued that online, or computer supported learning does not allow children to develop adequately functioning brain structures for remembering items and retrieving them from memory. Critics often point to the so-called "Google effect" [1]. According to this somehow controversial effect, the use of the Internet changes the way we remember diverse items: the memory mechanisms of people who are active in the use of search engines start to change functioning: it is not the useful content itself that is remembered, but the way (i.e. files, websites, sequences of requests to a database) to reach the area in which the needed information is located. Thus the structure of mnemonic processes becomes changed, while computers, gadgets, smartphones and the cyberspace itself turn into a kind of

---

IMS 2021 - International Conference "Internet and Modern Society", June 24-26, 2021, St. Petersburg, Russia

EMAIL: vaemsu@gmail.com

ORCID: 0000-0002-5213-1366



© 2021 Copyright for this paper by its authors.

Use permitted under Creative Commons License Attribution 4.0 International (CC BY 4.0).

CEUR Workshop Proceedings (CEUR-WS.org)

"external memory." Some social and psychological transformations of this type were predicted long time ago by McLuhan [2], who passed away shortly before the rise of the digital revolution.

## **2. Digital Technologies and Human Brain: Positive or Negative Collaboration?**

Similarly to the abovementioned transformation of psychological processes responsible for memory functioning, thinking-related operations and volitional processes get modified as well. Besides, the haptic mechanisms of tactile sensitivity may suffer due to excessive symbolization, which replaces processes regulating the acquisition of proprioceptive sensitivity while doing screen work, even when 3D systems are used. In addition, it is often argued that social relationships in an online environment are not equivalent to real-life relationships of liking, friendship, antipathy, love, or dislike due to a lack of experience in online empathy or incomplete knowledge related to its acquisition as well as delayed formation of emotional intelligence. Usual squabbles between teenagers, often short-lived, may become presumably stagnant, embrace a large audience, and turn into cyberbullying or cybermobbing mixed with patterns of hate speech. Taken younger students, the skills responsible for mental arithmetic calculations stay underdeveloped due to the easiness of calculations mediated by the smartphone's "calculate" option. Finally, success in popular video games correlates with prolonged gaming sessions; that means, effectiveness of studies at high-schools or universities suffers, while the interest to mastering a particular profession becomes delayed. At the same time, in the absence of the necessity to take accurate and long notes by hand, fluent shorthand skills become impaired and fine motor skills stay insufficiently developed.

Dozens of such "horror stories" as well as real-life warnings referring to the so-called "Digital Dementia," partly supported by results of refined neuroscience experiments are presented in the monograph by a German scholar M. Spitzer [3]. His views have been supported by numerous educationalists. Many arguable considerations on the theme, based on diverse perspectives, have been expressed recently [4, 5, 6]. Patterns of peculiar folklore have developed around the intrusion of digital technologies into everybody's private life – school studies, work, recreation, gaming, fact-checking and information retrieval, small talk, etc. These patterns may insert a touch of mysticism; for example, some websites are believed to be associated with biographies of people (actually, females) who were either never born or happened to mysteriously disappear [7]. A huge number of people, mostly young or very young, deal with fantasies, with historic or futuristic content when they play Massively Multiplayer Online (MMO) Games. An abundance of magical content gradually passed from the still far-off times when their parents or older brothers/sisters enjoyed playing text-only role-playing games called MUDs – this abbreviation means either multi-user dungeon, or multi-user dimension together with multi-user domain, and most likely, all the three interpretations together [8].

Attempts to develop adequate psychological mechanisms for multitasking are often argued to lead, for the most part, to slower performance of work activities, since "simultaneously" and "concurrently" performed actions are in fact performed in turn, while the attention mechanisms perform frequent cognitive switches [9, 10]. At the same time, an opposite viewpoint on multitasking – being a rare personal ability or a skill highly developed within the representatives of the youngest generations – is widely presented and substantiated in the current literature [11, 12].

In fact, many caveats are debatable, except that cyberbullying has become a real problem that is difficult to solve, and the dangers of the Internet addiction (the preferred term for the latter is nowadays the "problematic" use of the digital technologies) are becoming a reality [13]. Namely, in 2018 the World Health Organization (WHO) selected the addiction to video games (but neither an addiction to interactions via social media or other types of addictive behavior in the cyberspace) and included a corresponding section in the revised International Classification of Diseases (ICD-11 handbook. The American Psychiatric Association, which is responsible for updating the Diagnostic and Statistical Manual of Mental Disorders (DSM) handbook, has not yet included neither video gaming nor any other type of cyber addiction in the revised DSM-5 handbook, while the WHO has recognized this possibility admissible in the near future.

A number of negative aspects of computers, smartphones, gadgets, and the Internet use cannot be investigated and tested until members of the generations who became accustomed to digital

technologies in their childhood have matured. Those of them who have already walked this path and managed to describe and reasonably evaluate their experiences have already presented and shown themselves as a highly educated and hardworking generation [14]. Just like other generations and regardless of the use of a particular social medium, they occupy social positions, which they deserve, within long-established human networks [15].

### 3. Memory and its Instruments – Culture Perspectives

With all disagreements between contemporary scholars in the details referring to the impact of the modern rapidly developing technologies on human mind, the story actually goes far into the cultural traditions of humankind. Socrates who certainly personified oral culture of truth-seeking techniques, openly expressed his anxiety related to the idea that human beings may use sophisticated means, such as written signs, to proceed in philosophical dialogues and get prepared to win in *maieutike* discussions. Plato who certainly personified an opponent culture, namely epistolary tradition, reported his guru’s concern that acquisition of written culture may bring problems, including psychological problems, to human mind.

Coming back to Socrates it is worth to quote a well-known point in the Plato’s dialogue “Phaedrus.” Namely, the Egyptian king Thamus replies to Theuth, the inventor of signs which enable processes of writing and reading: “In fact, it will introduce forgetfulness into the soul of those who learn it: they will not practice using their memory because they will put their trust in writing, which is external and depends on signs that belong to others, instead of trying to remember from the inside, completely on their own. You have not discovered a potion for remembering, but for reminding; you provide your students with the appearance of wisdom, not with its reality. Your invention will enable them to hear many things without being properly taught, and they will imagine that they have come to know much while for the most part they will know nothing. And they will be difficult to get along with, since they will merely appear to be wise instead of really being so” [16, 551-552].

It is quite easy to admit that king Thamus’ concerns did not play an important role throughout the history of civilization. Indeed, our culture has been enriched with various artefacts mediating human cognitive processes such as remembering, perception, differentiation, thinking and decision making, imagination, recognition of visual, haptic and oral (especially verbal) stimuli, etc. It was rather rarely that scholars would come across “practitioners of mnemonics” in terms of Umberto Eco who recalled several old-time stories referring to people who lacked the strength to refrain from remembering all the stuff they had a misfortune to bump into [17]. Moreover, Eco criticized the habit common to the younger generations of our contemporaries, namely of making hundreds of photographic images depicting different events or notable places and saving these digital (only rarely printed) images instead of memorizing landscapes or persons in order to get pleased afterwards when and if recall them mentally.

A thorough psychological study of a Russian mnemonist Shereshevsky, briefly called in textbooks as S., was presented in a popular book by Alexander Luria [18], a first-generation follower of Lev Vygotsky – the founder of the cultural psychology theory. Both Eco and Luria insisted that the set of mental processes mentioned above needs to be enlarged and include techniques for forgetting, not only remembering. Umberto Eco sounds critically about processes which may be called the “Google effect” - he stands against “the loss of memory”, the process he corresponds with the advance of digital technologies [17]. On the contrary, Lev Vygotsky’s theory stands as a basis for investigations of the “Google effect” as well as diverse similar effects. Thus, the cultural psychology is a basis, at least relating to what is being done in Russia, in the field of the Internet psychology or cyberpsychology [19, 20], namely in psychological studies aimed at finding out the numerous effects inherent of intensive investigations of human behavior when it is mediated by all sorts of digital technologies.

The discussion of positive and negative impacts – actual or prospective – of digital technologies on psychic processes needs to go much further; nevertheless, we will not proceed in full depth since this is not the main theme of the current paper. The brief review concentrated exclusively on mnestic processes (rather than many other higher psychological functions, in Vygotsky’s terminology) had no other purpose than to illustrate some trends in philosophical, psychological and physiological debates

coming from the ancient times, with quite a good perspective of turning into an eternal scholar discussion.

#### **4. Development of Cyberpsychology in Russia and Abroad**

The cultural history of the Internet development in Russia, mainly parallel to socioeconomic, political, entrepreneurial and legal changes, has been traced in the works of numerous authors and from diverse perspectives, to mention just a few [21 – 25]. The main areas of research, methodology and variety of behavioral content in the cyberspace related psychological studies, held in Russia, have been presented and discussed elsewhere [20, 26, 27]. Psychological studies referring to the Internet mediated behavior may be collected under an umbrella term cyberpsychology. Taken the worldwide scale, volume and quality (which may very likely called high quality) of relevant publications, the studies referring to cyberpsychology are close to form a mainstream both in modern psychology and in the neighboring disciplines [28 – 32].

The Introduction to the most recent volume on cyberpsychology, which brought together an international team of authors, starts with the words saying that cyberpsychology is the "discipline of understanding the psychological processes related to, and underlying, all aspects and features of technologically interconnected human behavior" [32, p. XV]. The chapters collected in the handbook present an up-to-date image referring to the development of cyberpsychology.

The stages of development and the current approaches within the cyberpsychology related research in Russia have been recently overviewed and described [20]. Four stages have been marked. The first stage was pre-Internet one: rather few experts in telecommunications and cybernetics were doing their best to unite the existing computers via networks; psychologists failed to find a better use of their abilities than to study the behavior of specialists united via local area networks (LANs) due to inexistence of global ones. The second stage was characterized by accidental and non-systematic access to global computer networks; at this stage the Vygotskian culture psychology was undoubtedly used as the leading theoretical platform. The third stage coincided with full access of Russian users to the global Internet services; that means, psychologists got a chance to construct reasonably large samples of research participants, and besides, they made a try to apply a variety of theoretical approaches: for example, several studies have been done within the methodology of positive psychology. Finally, the current stage can be characterized as the right time for mass studies of both adults and children, including preschoolers; theoretical variety is widely expanded, compared to the third stage; new areas of research have been developed, such as online addictions or virtual/augmented studies; the cyberpsychology got its place within the bundle of neighboring disciplines, including computer science, education, media studies, medicine, philosophy, communication studies, sociology, culture studies, etc. One of the consequences says it is time to start learning and teaching cyberpsychology.

In the following sections we will briefly discuss the results of our search aimed at identifying institutions that could certainly be named pioneers in teaching cyberpsychology; the main features of appropriate educational programs will be discussed as well. To the best of the author's knowledge there are still not many colleges and universities which provide classes in such a newborn discipline. Nevertheless, it is worth to add that in the last two or three years a certain leap is taking a place: nowadays we can name substantially more such educational institutions than before the specified time. Most usually, the pioneering universities suggest MS degrees and accept students with diverse bachelor's backgrounds – often in media or computer science, education, social care, business administration, etc. That means, the applicants for a master's degree in cyberpsychology may hold diverse BS degrees, not necessarily in psychology. Quite likely, the cyberpsychology curricula should vary according to the specialty the students received earlier. Right now though, this particular aspect cannot be fully covered.

#### **5. Teaching Cyberpsychology**

Teaching cyberpsychology seems to be a totally new world-wide experience; generally, this is true but not without a single exception, namely the Cyberpsychology Master's program at the Dun

Laoghaire Institute of Art, Design and Technology (IADT) in Dublin (Ireland): this program is active for over ten years. Prior to making attempts to get a MS degree, Irish students may take an undergraduate BS program in Psychology and Computing (which is close to being a prerequisite for cyberpsychology as the next degree) from the University College Corc (Ireland).

For almost a decade, the IADT was staying the only spot specializing in teaching cyberpsychology. Currently, there are newer educational options too, mostly from British universities: along with Ireland, the UK is leading the way in training cyberpsychologists. For example, after a short break, the second old Master’s program in cyberpsychology is active at the Nottingham Trent University (Nottingham, UK). Given high qualifications of professors and lecturers in the two institutions (IADT and NTU) – they have the priority in teaching cyberpsychology – the quality of knowledge acquired while mastering the fundamentals of the discipline can be considered well advanced.

Other relevant programs in the UK include Bachelor’s/Master’s in Cyberpsychology from the University of Wolverhampton, the University of Bolton, the University of Buckingham, the University of Central Lancashire in Preston and the Bournemouth University. In the United States, the Cyberpsychology Master's program has been offered at the New Jersey Institute of Technology (NJIT) in Newark (NJ); NJIT is recognized as one of the nation's oldest and best engineering and science schools. Two universities in Virginia must also be mentioned: the Regent University in Virginia Beach and the University of Norfolk. Several specific programs within the relatively broad field of cyberpsychology are suggested elsewhere within the American universities. A program Cyberpsychology and e-Health is open at the University of Sydney, Australia.

Outside the English-speaking world, students too have chances to master cyberpsychology. For example, this specialization is open at the Izmir Bakırçay University in Turkey. The Academic Institute of Psychology (Akademisches Lehrinstitut für Psychologie) at Lübeck, Germany together with the University of Applied Sciences for Management & Communication in Vienna (FHWien der WKW) – the latter recommends itself as «the Austria's leading university of applied sciences for management and communication» - is promoting an MS program «Cyber Psychology of Online Communication». In fact the education under this program is not limited to topics dealing exclusively with social media and online communication: the curriculum includes for example the fundamentals of artificial intelligence, online gaming, e-business and e-commerce – thus covering several most important themes within cyberpsychology. The process of education is conducted exclusively in English, it lasts three semesters with the final exams at Vienna (FHWien der WKW), and – what should be specially mentioned – is operated online: web ads say that this is «a 100 % distance learning degree program, making it easy for you to study while working». The two abovementioned collaborating institutions emphasize that while the successful students will get a master’s degree in «Cyber Psychology of Online Communication», they will not get enough competences to apply for a position of “psychologist”.

A program Cybertherapy and Neurocognitive Rehabilitation is offered at the University of Lusofona in Lisbon (Portugal): it is related to the use of virtual and augmented reality systems in clinical psychology to perform therapeutic and rehabilitative tasks. The title of this special program corresponds to several problem areas, common for the international community of cyberpsychologists, including psychologists, physiologists and neuroscholars, social workers and specialists in engineering and computer science (primarily in the development and application of virtual and augmented reality systems). Cyberpsychologists are fully involved in research and in applied work of the iACToR members. The community – namely, the International Association of CyberPsychology, Training, and Rehabilitation (iACToR: <https://iactor.ning.com/>) – organizes annual world-wide working meetings as well as local and/or narrow-topic conferences, when and if there is no threat of pandemia: due to the risks of infection, the last-year annual conference was not held in 2020.

Since the universities in Ireland and in the United Kingdom are leading in terms of training cyberpsychologists, it is not surprising that in these countries there are professional associations which unite educationalists and researchers in the field. Thus, within the Irish Psychological Society there is an offshoot for professionals who study the impact of media, cyberpsychology and additionally art psychology (<https://www.psychologicalsociety.ie/groups/Special-Interest-Group-in-Media-the-Arts-and-Cyberpsycholog>). The British Society of Psychologists also contains a

Cyberpsychology Section (<http://cyberpsychology.org/about-us/>). Indian experts within the Cyber Psychology Association suggest various courses dealing with cybersafety and cyberpsychology. Cyberpsychologists in the United States (foreigners are also allowed) are mostly united in the 46th division of the American Psychological Association (APA), called the Society for Media Psychology and Technology of the American Psychological Association (<https://www.apa.org/about/division/div46>). At the same time, American and international psychologists studying human behavior in cyberspace have not created any global professional associations; many of them are members of the Association of Internet Researchers ([www.aoir.org](http://www.aoir.org)) along with specialists in social or computer science, sociology or media studies.

Thus, we can state some positive shifts in regional educational policy: cyberpsychology is now being taught; there are already university graduates and alumni in Ireland having an academic degree in cyberpsychology; in addition, recently several associations of cyberpsychologists began to be formed within national psychological societies.

### 5.1. Prospective Ways of Teaching Cyberpsychology

It is reasonable to start discussing what are (and should be) the ways of teaching the totally new discipline, what is the particular content to be lectured and to be learned by cyberpsychology students? There are several prospective ways, regarding the current teaching and learning perspectives; two of these ways are supported by the published textbooks.

One of the handbooks [28] is an extended version (marked as the second edition) of the textbook on Human-computer interaction (the first edition) – written by Kent Norman. The Human-Computer Interaction (HCI), also known as Computer-Human Interaction (CHI) is a well-developed discipline which is traditionally taught world-wide as a part of computer science programs. Two scholar associations – HCI and CHI – organize in turn yearly conferences with thousands of participants: the discipline is quite a popular research and teaching/learning field. The extended second edition of the handbook [28] include (along with fundamentals of cognitive science, artificial intelligence, software engineering, usability and design of interfaces) purely web behavior content related for example to specifics of personal traits, social media and elements of social psychology, video gaming and digital entertainment, assistive technologies, use of virtual and augmented reality for psychological rehabilitation, etc. Thus in the second edition the author has made a wide step towards the most current issues in cyberpsychology. The Norman's textbook [28] may be universally useful as the major source for teaching cyberpsychology to competent students holding a bachelor degree in computer science.

Another textbook on cyberpsychology was published by psychologists from the Dun Laoghaire Institute of Art, Design and Technology [29]. The Introduction to the book says that a reader may misunderstand “what the difference is between human computer interaction and cyberpsychology. This book focuses on the latter, namely on the psychology of how people behave in a technologically connected environments” (p. XV). While there are indeed good reasons for misunderstanding, the difference from the Norman's attitude towards teaching cyberpsychology is evident. Particularly, content related to HCI is limited to only one (out of 21) chapter, description of cognitive processes is limited to methods of distraction when online, large chapters deal with self-concept, group dynamics, online relations, cyberpathology, cyberpsychological therapy and rehabilitation. Besides, the authors discuss legal issues related to cyberpsychology, as well as specifics of working processes or education online, major issues of online marketing, most popular themes such as psychology of cybersport and gaming. The use of virtual/augmented reality and artificial intelligence systems in psychology is too examined in detail.

It is easy to come to the conclusion that the latter textbook [29] is limited to discussions of web effects, particularly the Internet mediated interaction, cognition and entertainment (including video gaming) and is not designed to cover the ideas and models worked out for human-computer interactions. Not surprisingly, the materials related to the web effects and web behavior are more fully represented in the latter textbook. The materials presented in the former textbook [28] may hardly been taught during rather short time (usually two or three years) of learning to get a Master's degree: that means, this textbook may be used for teaching BS and MS level grades consistently. The latter

textbook [29] is not covering the HCI materials; it can be used parallel to the abovementioned handbook [28] for example to teach Master’s degree curriculum in cyberpsychology to students holding a bachelor degree in computer science or in human-computer interaction, or else to other students who are competent in computer science. It is useful to mention that the textbook under discussion [29] is enriched by several monographs and edited collections of papers [33, 34] which often present more specified and targeted content than the major textbook does. The basics of cyberpsychology may be also learned from a small but thoughtful popular book by Amichai-Hamburger [35]. The author’s possible futuristic speculation prompts that new textbooks may appear soon enough.

Lastly, the third way of teaching cyberpsychology is not fully covered by textbooks since it is based on the programs of particular lecturers’ courses with *ad hoc* literature sources, such as monographs, collective monographs or edited collections of chapters, and journal articles. Supposedly, the most part of world-wide lecturers prefer exactly this way of teaching cyberpsychology. The author, for example, is teaching in the Moscow University an introductory course of cyberpsychology to general psychology students (they are learning to receive an equivalent of a Master’s degree) during the last 26 years; needless to mention, the main components of the course have been several times seriously updated, following the innovations in digital technologies and in the changing ways the human beings use new technologies (what is sometimes called Web 2.0.). It is possible to notice that even definitions and terminology have changed a lot during this rather long time period: the fact of numerous changes has been thoroughly confirmed in a structured review [36] of the academic sources published from 1994 up to 2019 on the themes close to the use of social media, also known as «virtual communities» and «social networks», while the starting point was the shortly used and long-time ago forgotten term «computer-supported social networks». At the same time, it is reasonable to draw attention to a recent attempt to give a somewhat ambiguous name «cognitive gadgets» [37] to several evolutionary cognitive mechanisms which ensure our rational and intelligent social and cognitive behavior.

## 5.2. Teaching Cyberpsychology in Russia

Like the whole world, Russian educationists noticeably lag behind from the Dun Laoghaire Institute and from several British universities in teaching cyberpsychologists and in uniting specialists in cyberpsychology within professional communities. At the same time Russian universities do not lag behind educational institutions in the USA, European Community, Australia and other countries: during the last two years several universities in Russia have already started to teach cyberpsychology to psychology students. In particular, Master’s programs in cyberpsychology are already open at Moscow (namely, at the Moscow Lomonosov State University and at the Russian State Social University) as well as at least two cities with high scholar traditions, such as Nizhny Novgorod (the Lobachevsky State University) and Stavropol (the Stavropol State University); besides, several more universities in Russia are about to start teaching this discipline in the Fall, 2021. To the best of the author’s knowledge, similar specializations are being also opened at several universities and colleges in the nearby former Soviet states: Belarus (in Minsk), the Ukraine (in Odessa), Moldova (in Kishinev).

This initiative is reasonable: on the one hand, the accelerated development of digital technologies and the daily use of smartphones, computers, tablets and/or various gadgets, give reasons for concern that intensive digital life may lead children and adults to unexpected social and psychological risks; on the other hand, it is easy to mark a noticeable enthusiasm and fandom attitudes towards gadgets which increasingly replace traditional ways of implementing communicative, labor, cognitive, entertaining (such as video gaming or YouTube/Netflix watching) and other types of activities, mediate dyadic or group relationships and act as a new sort of media. All this increases the importance of conducting psychological research aimed at identifying the real pros and cons of the daily use of digital technology products. To carry on such investigations and to mark recommendations referring to the age related and cognitive/mental development related specifics in the use of digital technologies, there is a need in a growing number of professionals in cyberpsychology.

Neither of the first two prospective ways of teaching cyberpsychology, mentioned in the previous section, is being used in Russia, mostly due to the fact that no textbooks in Russian language are available. To the best of the author's knowledge, all the Master's current and planned would-be cyberpsychology programs are targeted on teaching bachelors in psychology and/or neighbouring disciplines in social sciences or humanities – or at least those who had previously got education in engineering but acquired strong interests in a psychology-centered field of knowledge. Thus, students in computer science and applied mathematics as a rule are not systematically taught fundamentals of cyberpsychology.

The catalogue of scientific and educational disciplines which are being developed in Russia does not include such points as “Human-computer interaction” (HCI) or “Computer-human interaction” (CHI) – the disciplines that are well-developed outside Russia [28]; research work within these fields has been done (if any) by non-numerous enthusiasts at best [20, 27]. As a result, there is no way that the newcomers into the Master's programs (the programs last 2-3 years) in cyberpsychology can be taught the full course of HCI/CHI: the volume of material to be necessarily taught may be compared to acquiring additionally to the introductory and advanced courses in cyberpsychology also full education in computer science.

That means, the approved way of teaching M.S. in cyberpsychology in Russia is the third of abovementioned ways, i.e. teaching to comprehend and probably correct patterns of web behavior – individual or group – and explain web effects but not advanced models common for such disciplines as computer science or HCI/CHI. Practice will show which way of teaching and learning cyberpsychology will become the most up-to-date in the close time period. Right now, the Russian lecturers in cyberpsychology lack textbooks and construct *ad hoc* programs; students follow the lectures and read diverse literature sources, i.e. research books and papers recommended by the lecturers.

This approach to teaching and learning cyberpsychology has already been criticized by Ukrainian experts from the Laboratory of Crisis and Disasters Psychology at the Ukrainian National University of Civil Protection. They mark that the «leading scholars from Europe and North America» have come to a consensus saying that «academic and practical field of cyberpsychology is much broader than Internet psychology or web psychology and is including interaction between man and machine, in particular human – computer interaction (HCI)» [38, P. 145]. Instead, as the Ukrainian experts mark, the «Russian school of cyberpsychology stays ... at an earlier stage of equating cyberpsychology and Internet psychology» [38, P. 146].

Thus, as it is easy to notice, views differ, which is a positive fact. Indeed, any differentiation of views brings society closer to following different or even opposite educational paths, checking their effectiveness and making obviously identified corrections aimed at building sound educational directions, ultimately – at offering particular students who keep genuine interest in cyberpsychology the most suitable trajectories of receiving high-quality education. Anyway, it is the first time in the history of our civilization that such a new field as cyberpsychology, or the Internet psychology has started to be a regular course taught world-wide at colleges and universities, both on the bachelor's and master's level.

## 6. Acknowledgements

The study was supported by the Russian Science Foundation, project # 18-18-00365

## 7. References

- [1] B. Sparrow, J. Liu, D. M. Wegner, Google effects on memory: Cognitive consequences of having information at our fingertips, *Science* 333 (2011) 776-778. DOI: 10.1126/science.1207745.
- [2] M. McLuhan, *Understanding Media: The Extensions of Man*. McGraw Hill, New York, N.Y., 1964.
- [3] M. Spitzer, *Digitale Demenz: Wie wir uns und unsere Kinder um den Verstand bringen [Digital Dementia: What We and Our Children are Doing to our Minds]*, Droemer Knauer, 2012.



- [4] A. Alter, *Irresistible: The Rise of Addictive Technology and the Business of Keeping Us Hooked*, Penguin Press, New York, NY., 2017.
- [5] J. M. Twenge, *iGen: Why today's super-connected kids are growing up less rebellious, more tolerant, less happy – and completely unprepared for adulthood*, Atria Books, New York, NY, 2017.
- [6] P. Zimbardo, N.D. Coulombe, *Man (Dis)connected: How technology has sabotaged what it means to be male and what can be done*, Rider, London, 2015.
- [7] E. Tucker, *Guardians of the Living: Characterization of Missing Women on the Internet*, in T.J. Blank (Ed.), *Folklore and the Internet: Vernacular Expression in a Digital World*, University Press of Colorado, Utah State University Press, 2009, pp. 67-79.
- [8] R. Bartle, *Designing Virtual Worlds*. New Riders Publishing, Indianapolis, IN, 2003.
- [9] D. Crenshaw, *The Myth of Multitasking: How "Doing It All" Gets Nothing Done*, 2nd Edition, Mango Publ., Coral Gables, FL, 2021.
- [10] A. Gazzaley, L. Rosen, *The Distracted Mind: Ancient Brains in a High-Tech World*, The MIT Press, 2017.
- [11] M.L. Courage, A. Bakhtiar, C. Fitzpatrick, S. Kenny, K. Brandeau, *Growing up multitasking: The costs and benefits for cognitive development*, *Developmental Review* 35 (2015) 5-41. doi: 10.1016/j.dr.2014.12.002
- [12] G. Soldatova, S. Chigarkova, E. Nikonova, D. Vinitskiy, *The Relationship of Media Multitasking to Adolescents' Productivity and Executive Functions*, in: R. V. Bolgov, A. V. Chugunov, A. E. Voiskounsky (Eds.) *Internet and Modern Society (IMS-2020)*, Proceedings of the International Conference "Internet and Modern Society" (St. Petersburg, Russia 17-20 June 2020), Ceur-WS, Cham, 2020 pp. 362-370.
- [13] C. Montag, M. Reuter (Eds), *Internet Addiction: Neuroscientific Approaches and Therapeutical Implications Including Smartphone Addiction*, Volume in the Series "Studies in Neuroscience, Psychology and Behavioral Economics", Springer International Publishing, 2017. doi: 10.1007/978-3-319-46276-9.
- [14] M. Harris, *Kids These Days: Human Capital and the Making of Millennials*, Little, Brown & Co. Hachette Book Group, New York, NY, 2017.
- [15] M.O. Jackson *The Human Network: How Your Social Position Determines Your Power, Beliefs, and Behaviors*, Vintage Books, New York, NY, 2019.
- [16] Plato. *Complete Works*, J. M. Cooper (Ed.), Hackett, Indianapolis, IN, 1997.
- [17] U. Eco, *Against the loss of memory*, 2018, URL: <https://anarchivio.wordpress.com/2018/02/20/against-the-loss-of-memory-umberto-eco/>
- [18] A.R. Luria, *The Mind of a Mnemonist: A Little Book about a Vast Memory*, Revised edition, Harvard University Press, 1987.
- [19] A. Voiskounsky, *The Origin and Current Status of Cyberpsychology in Russia*, in: Zh. Yan (Ed.), *Encyclopedia of Cyber Behavior*, IGI Global, Hershey, PA, 2012, pp. 1328-1338.
- [20] A. Voiskounsky, *Development of the Internet Psychology in Russia: An Overview*, in: D.A. Alexandrov, A. V. Boukhanovsky, A. V. Chugunov, Y. Kabanov, O. Koltsova (Eds.) *Digital Transformation and Global Society*, Vol. 859, Part II of the series *Communications in Computer and Information Science*, Springer Verlag, 2018, P. 215-226.
- [21] A. Bowles, *The Changing Face of the RuNet*, in: H. Schmidt, K. Teubener, N. Konradova (Eds.), *Control + Shift: Public and Private Usages of the Russian Internet*, Books on Demand GmbH, Norderstedt, Germany, 2006, pp. 21-33.
- [22] E. Dyson, *Release 2.0: A Design for Living in the Digital Age*, Broadway Books, New York, NY, 1997.
- [23] E. Kiselyova, M. Castells, *Russia in the Information Age*, in: Victoria Bonnell and George Breslauer (Eds.), *Russia in the New Century: Stability Or Disorder?*, Westview Press, Boulder, CO, 2001. pp. 126-157.
- [24] N. Konradova, *The Rise of Runet and the Main Stages of Its History*, in: Sergey Davydov (Ed.), *Internet in Russia. A Study of the Runet and Its Impact on Social Life*, Springer Verlag, 2020, pp. 39-61. doi: 10.1007/978-3-030-33016-3\_3
- [25] A. Soldatov, I. Borogan, *The Red Web: The Struggle Between Russia's Digital Dictators and the New Online Revolutionaries*, Public Affairs, New York, N.Y., 2015.

- [26] G.U. Soldatova, E.I. Rasskazova, S.V. Chigarkova, Digital Socialization of Adolescents in the Russian Federation: Parental Mediation, Online Risks, and Digital Competence, *Psychology in Russia: State of the Art*, 13 (2020) 191–206. doi: 10.11621/pir.2020.0413.
- [27] A. Voiskounsky, *Cyberpsychology and Computer-Mediated Communication in Russia: Past, Present and Future*, *Russian Journal of Communication*, 1 (2008) 78-94 doi: 10.1080/19409419.2008.10756698
- [28] K. L. Norman, *Cyberpsychology: An Introduction to Human-Computer Interaction*, 2nd edition, Cambridge University Press, 2017
- [29] I. Connolly, M. Palmer, H. Barton, G. Kirwan (Eds.), *An Introduction to Cyberpsychology*, Routledge, 2016.
- [30] A. Barak (Ed.), *Psychological Aspects of Cyberspace: Theory, Research, Applications*. Cambridge University Press, 2008.
- [31] J. Suler, *Psychology of the Digital Age: Humans Become Electric*. Cambridge University Press, 2016.
- [32] A. Attrill-Smith, C. Fullwood, M. Keep, D.J. Kuss (Eds.), *The Oxford Handbook of Cyberpsychology*, Oxford University Press, 2020.
- [33] A. Power, G. Kirwan (Eds.), *Cyberpsychology and New Media: A thematic reader*, Psychology Press, UK, 2013.
- [34] M.T. Whitty, G. Young, *Cyberpsychology: The Study of Individuals, Society and Digital Technologies*, 1st edition, BPS Blackwell, 2016.
- [35] Y. Amichai-Hamburger, *Internet Psychology (The Basics)*, 1st Edition, Routledge, 2017.
- [36] T. Aichner, M. Grünfelder, O. Maurer, D. Jegeni, Twenty-Five Years of Social Media: A Review of Social Media Applications and Definitions from 1994 to 2019, *Cyberpsychology, Behavior, and Social Networking*, 24 (2021) 215-222. DOI: 10.1089/cyber.2020.0134
- [37] C. Heyes, *Cognitive Gadgets: The Cultural Evolution of Thinking*, Cambridge, MA: The Belknap Press of Harvard University Press, 2018.
- [38] V.R. Tsokota, O.V. Kravchenko, *Cyberpsychology: evolution of the notion and current state*, *Naukovi visnik, Khersonski universitet. Psikhologichny nauki* 1(6) 2017.