Transformation of Cognitive Practices in Mixed Reality Context

Transformación de prácticas cognitivas en el contexto de la realidad mixta

MIKHAIL DMITRIEVICH SCHELKUNOV
https://orcid.org/ 0000-0003-3132-0608
mikhail.schelkunov@rambler.ru
Kazan Federal University. Russia

EVGENIYA MIKHAILOVNA NIKOLAEVA
https://orcid.org/ 0000-0002-0150-1611
kaisa1011@rambler.ru
Kazan Federal University. Russia

POLINA SERGEEVNA KOTLIAR
https://orcid.org/ 0000-0003-4795-8841
philosophy.polikotsob@mail.ru
Kazan Federal University. Russia

ABSTRACT

The article is devoted to the problem of formation of a new type of cognitive practices in mixed reality, where the process of cognition is mediated by digital artifacts. Changes, which have to do with the interaction of the cognizing subject with smartphones and artificial intelligence at the level of daily life are actualized through various manifestations of 'gnoseological omniscience', absorption in 'garbage content' and the phenomenon of constant connection to the Web. The article demonstrates the heuristic nature of the question of personalization as a necessary factor in the formation of the web-mind.

Keywords: Cognitive extensions, digital artifacts, embodied knowledge, mixed reality.

RESUMEN

El artículo está dedicado al problema de la formación de un nuevo tipo de prácticas cognitivas en la realidad mixta, donde el proceso de cognición está mediado por artefactos digitales. Los cambios, que tienen que ver con la interacción del sujeto cognitivo con los teléfonos inteligentes y la inteligencia artificial a nivel de la vida diaria, se actualizan a través de diversas manifestaciones de 'omnisciencia gnoseológica', absorción en el 'contenido de basura' y el fenómeno de la conexión constante a la Web. . El artículo demuestra la naturaleza heurística de la cuestión de la personalización como un factor necesario en la formación de la mente web.

Palabras clave: Artefactos digitales, conocimiento incorporado, extensiones cognitivas, realidad mixta.

INTRODUCTION

The problem of embodiment is quite deeply and thoroughly comprehended in the philosophical field of the twentieth century. The authors of various concepts are united in their interpretation of embodiment as the most important element of human subjectivity. At the same time, the main interest of researchers is focused not only and not so much on the biological essence of the human body, with attributes and stencils set by nature. The object of reflection becomes embodiment as a phenomenon, socially and culturally implicated, which is rather the bodily being that realizes itself through various kinds of activities, primarily cognitive. Our understanding of embodiment calls the body "the organ of forming meaning" through touch, and describes embodiment as the only possible form of detecting the subject (Elo: 2018).In this context, to think with the body means to participate in the production of something, to practice something, to be the creator of own subjectivity.

The study of the history of philosophical thought provides us with many examples of the phenomenon of 'bodies multiplication' – for instance, the description of the disembodied soul and its body in Plato or the dichotomy of body and consciousness in Rene Descartes. Notwithstanding the fact that in modern epistemology, 'embodied approaches' to the consideration of such phenomena as consciousness and corporeality are widespread and authoritative, many researchers still make attempts to differentiate the body (Aleksandrova & Trushnikova: 2018). For example, the process of rethinking corporeality in the new digital landscape leads to the appearance of the not quite correct, in our opinion, oppositions held in the logic of 'virtual – physical body'.

If we try considering the phenomenon of digital interaction from the perspective of the concept of incarnation, which defends the idea of embodiness of cognitive processes, we can assume that a holistic interpretation of the relationship 'mind – body – environment' can become a way of revealing the dialectical connection between a person and new digital technologies (Biryukov: 2016, pp. 53-57; Fenici & Garofoli: 2017, pp. 89-117; Leydens & Lucena: 2017; Villalobos et al.: 2018; Ramírez et al.: 2019).

METHODS

The theoretical and methodological basis of this research is determined by the need of interpreting modern cognitive practices in a mixed reality environment, when artificial intelligence and digital artifacts become active participants. Therefore, the program of embodied knowledge was chosen as the basis for the research. Fundamental works in this field are Gerard O'Brien's 'Mind: embodied, embedded, but not expanded', and 'Being here: reconnecting the brain, body, and the world' by Andy Clarke. The studies that treat cognition as an embodied action are also important from a conceptual point of view (Varela, Thompson, Rosch, Lakoff, Johnson, Brooks), as well as those, drawing a line of demarcation between online and offline types of cognition.

The paper uses historical and comparative research methods in the context of addressing the philosophical aspects of the problems of the information society. In addition, a great role was played by the work on environmental psychology of J. J. Gibson (Gibson: 1960) and the phenomenology of M. Merleau-Ponty (Merleau-ponty & Smith: 1966)

RESULTS

At the moment, the prevailing instrumental view of the role of technology remains, when the bodily experience of a particular individual is not taken into account or leveled, its alienation or creonization occurs. The person turns into a specific abstraction and the process of 'immersion in perfection' takes place: the focus shifts to the intellectual experience of the subject and the effectiveness of his interaction with the technological artifact. This also leads to the paradoxical view that digital artifacts are tools that can in some way ensure equality between people. However, you cannot give a shovel to a hungry person and to well-fed one, expecting to get the same results. Therefore, social, cultural, and phenomenal experience, which is more or less loaded with the physicality of a person, must be included in the research field when studying the impact of digital technologies on the course of cognitive processes.

Not only the Internet proves to be one of the elements of society's infrastructure, but also it is becoming a new form of human cognitive ecology (Leibowitz: 2017, pp. 93-112; Molchanov et al.: 2018). At the same time, it is very difficult to separate public systems and institutions from the 'scaffolding' that the Internet is creating for them presently.

If we consider the relationship between digital technological artifacts and human beings from the viewpoint of the extended concepts of cognition, it should be noted that a cognitive organization can include both objects that stand on the border between the Web and a human, such as smartwatches or smartphones, and physically inaccessible phenomena like artificial intelligence, quantum cloud services. The questions that remain debatable are whether we can consider the Web as part of our cognitive profile, what consequences will the phenomenon of 'gnoseological omniscience' entail, and whether the concept of web intelligence is a cognitive bloat?

Let is try clarifying some of these issues. To begin with, the cognitive scientist Andy Clarke (Maydanskiy: 2019) in an effort to determine the existing types of cognitive bloat, submitted a number of criteria allowing you to at least conditionally outline a circle of non-biological objects that can become a part of the cognitive system. This list includes the following criteria: trust (as the absence of critical analysis), constant availability, personalization, and the presence of a cyclical relationship and interdependence between the individual and the technological artifact. On the assumption of these criteria, it is clear that we cannot consider, for example, a home library as a form of cognitive expansion or biotechnological hybridization.

Evaluation of the Network through the prism of Clarke's criteria for cognitive expansion is not that unambiguous. First, of course, we do not trust the Internet as much as our biological memory. However, the question remains open whether this trend will continue for the alpha generation, for whom the Internet is a basic and fundamentally important source of information (Fortova: 2019, pp. 240-242; Maunah: 2020, pp. 163-191). In addition, we are increasingly seeing research on memory plasticity and its contextual conditioning, which may also tip the scales against bio-memory in the future.

The problem of 'gnoseological omniscience' is also of great interest. How does constant access to the network affect the state of our biological memory? In this case, does the web information happen to be a part of my personal knowledge and beliefs simply because I am an owner of a smartphone? Of course not. Incoming information must influence the subject's thoughts and actions, and it must be processed accordingly. Marcel Proust, who paid particular attention to the phenomenon of memory in his works, wrote that 'one soon forgets what has not been deeply thought out...'(Engeström & Middleton: 1998; Prust: 2017). Memory is associative and multi-layered, and autobiographical memory is also a constructive process that can create false memories, among other things. At this stage, the Web cannot provide storage alternative to long-term human memory.

Utopía y Praxis Latinoamericana; ISSN 1316-5216; ISSN-e 2477-9555
Año 25, n° extra 10, 2020, pp. 128-134
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DISCUSSION

Returning to the question of the possibility of acknowledging the Internet-based technologies as a mechanism for cognitive expansion, we cannot fail to mention innovations related to the sphere of mixed or hybrid reality ('Mixedreality', MR) (Raptis et al.: 2018, pp. 69-79). Mixed reality is a form of perceptual enrichment of the cognitive environment. Using MR devices allows one removing some of the restrictions imposed by our physical embodiment and physical reality, and provides an opportunity to establish new forms of interaction of the subject with the world. And in these interactions, a new hybrid embodiment express itself clearly, based on the processes of merging biological, physical and digital. Digital practices that rewrite the morphology of human embodiment. Digital reality provides the user with unique opportunities for bodily representation in artificial worlds. It becomes an environment for completely new experiences and bold experiments with the mind and body.

One of the first to put attention to the new type of embodiment is D. Haraway in her Manifesto, where he tries to define a new type of subject, a new hero – cyborg (Haraway: 2016). Criticizing gender inequality, modern feminist theory, embodiment and dualism in philosophy and social theory, Haraway proposes the concept of a "cyborg" as a cybernetic organism (a hybrid of a machine and an organism), creating social reality and generating fantasy. One of the most important ideas for the author is that the border is actually just an illusion (after all, we have all been cyborgs for a long time), and the attempt to draw it becomes a political action and leads to war.

As a result of the development of research in biology, neuro-and cognitive sciences, representation about the hybridity of human physicality were supplemented with new concepts based on the idea of spatial distribution of consciousness and close correlation of the body with the environment. Thus, Bateson emphasized that the main evolutionary unit is not an autonomous organism, but an 'organism-in-its-environment' (Bateson: 1972).

This is a synthetic definition emphasizes the determination of the individual organism with the environment, that necessary for its life resources. In this sence the organism is not thought of as an autonomous monad; when it comes to G. Bateson's concept, its ontological status changes.

The topic of mode of interaction and connections in the network, which allows focusing on infrastructures, assembling (assembly, couplings, dispositives) has become the center of B. Latour's research.In his actor-network theory, which abolishes the previous oppositions (living and non-living, natural and artificial, external and internal), the idea of hybridity of both social and bodily sounds clearly (Alexander et al.: 1998, pp. 129-154; Latour: 2007; Wheeler: 2014).

And it is exactly in the situation with hybrid reality that one of E. Clarke's criteria is clearly visible, through which he tries determining the phenomenon of cognitive bloat – this is the interaction and interdependence of human actions and a technological artifact. For instance, in case when we use GPS-enabled MR technologies for home navigation. The device determines the route of our movement, but at the same time we indirectly influence it, because as we move, there is a need of having the graphic maps updated.

Personalization is another condition for the Web-mind formation (Billett: 1998, pp. 21-34; Itinson: 2020, pp. 22-24). In this regard, we will try identifiyng several personalization modules, including the following ones:

1. Personalization of applications. An example of such personalization is the Endel smartphone app, which creates personalized soundscapes for specific user requests (relaxation, increased concentration, etc.). This application is also innovative in terms of legal regulation of intellectual property protection: the record company Warner Music has for the first time signed a contract, enshrining creation of music with the help of algorithms. It is possible that in the era of industry 4.0. such precedents will call the adequacy of anthropocentrism into question.

2. Personalization of the devices. A bright example in this case is the Project Ara. This is a Google project designed to create a modular smartphone. According to the developers' idea, such a technological mosaic

consisting of separate modules, including display, battery, and keyboard – would allow users, first, to update the outdated parts, and second, to theoretically reduce the amount of technological garbage. In 2016, this project was frozen, but in 2019, Google once again published a patent application describing a similar modular gadget.

3. Web-personalization or personalization of content. This method is related to user profiling. At the moment, it is most often used either in search services or in marketing strategies.

CONCLUSION

Cognitive practices, being implemented by the subject in a mixed reality necessarily include as a prerequisite his body-loaded socio-cultural and phenomenal experience. Colonization of the human body by technical devices leads to the emergence of specific bodily practices that form new ways and levels of interaction between people, people and machines, which can lead to the decentralization of the subject, blurring the lines of internal-external, mine-other people, natural-artificial. Boundries disturbance and changes of human embodiment, from exoskeletons to augmented reality and virtual reality, will lead to serious transformations of the paradigm and normativity of body perception in the near future. The development of these technologies will cause difficulties in interpretation of user experience and their acceptable use. Many such issues arise on the agenda of technology corporations and political decisions, and an epistemological perspective would help normalize such experience. In this regard, the problem of personalization of the intellectual experience of the subject and the effectiveness of its interaction with technological artifacts is acute. Bearing the above in mind, it can be argued that personalization positively affects the quality of interaction between the cognizing subject and the technological device and serves to increase the availability of information. In addition, it can be assumed that in the future, personalization will minimize the user's efforts regarding critical verification of information, since the 'attuned' network will be perceived as an epistemically reliable source.

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Utopía y Praxis Latinoamericana; ISSN 1316-5216; ISSN-e 2477-9555
Año 25, n° extra 10, 2020, pp. 128-134
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BIODATA

M.D. schelkunov: born in 1954. Education: Kazan state university (1976). Doctor of philosophical sciences. His Positions is in Professor in KFU. Director of Institute of Social and Philosophical Sciences and Mass Communications.

E.M NIKOLAEVA: born in 1965. She graduated in 1983-1989 from Kazan state University, History and social science. Qualification is Teacher of History and Social Studies. She graduated in philosophy in 2016-2018 from Kazan Federal University. Doctor of philosophical sciences. Her position Professor in KFU / Institute of Social and Philosophical Sciences and Mass Communications / Department of Philosophy and Religious Studies / Department of General Philosophy. Scientific interests: philosophy of education, social synergetic, philosophy of science.

P.S KOTLIAR: born in 1991. She graduated in 2010-2015 from Kazan Federal University, Institute of Social and Philosophical Sciences and Mass Communications in Philosophy, Ethics, and Religious Studies. Her Qualification is Researcher. Her Research teacher was in Philosopher in 2015-2018. Her Positions is in Senior Lecturer in KFU / Institute of Social and Philosophical Sciences and Mass Communications / Department of Philosophy and Religious Studies / Department of General Philosophy.