DIGITAL ENVIRONMENTAL ACTIVISM IN UZBEKISTAN: THEORETICAL AND PRACTICAL APPROACHES AND CHALLENGES

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Abstract: The article examines the phenomenon of digital environmental activism in the context of digital transformation of Uzbekistan. An overview of theoretical approaches to understanding digital civic participation and environmental initiatives in the online space is provided. Examples of digital initiatives in Uzbekistan are described, key challenges and risks are identified. An attempt is made to adapt foreign theoretical models to the regional context. In conclusion, the article offers the author's vision of the possibilities of integrating these approaches to study environmental online activism in the context of the scientific environment of Uzbekistan.

Keywords: ecology, digital activism, Internet technologies, digital society, online communities, digital humanities

Introduction

One of the most important challenges facing modern Uzbek society is the so-called "information revolution" — the rapid spread of digital technologies that radically transform social relations and the structures of everyday life. These changes are particularly evident in the emergence of new forms of social interaction, such as digital civic participation and environmental activism, as well as the widespread introduction of automated solutions and elements of "smart" infrastructure in the urban environment [1-5].

In recent years, Uzbekistan has been making large-scale efforts to digitalize public administration and modernize information and communication technologies (ICT). This is reflected in strategic documents such as the "Digital Uzbekistan Strategy – 2030", the "Electronic Government" program, as well as numerous initiatives in the field of Smart City and open data. Key priorities include the development of a digital state, expanding opportunities for citizen participation in governance, ensuring transparency in decision-making, and digital inclusion [6,7].

At the community and city level, there is growing interest in electronic platforms, geographic information systems, mobile applications and social networks through which citizens can express their opinions, participate in discussions of urban problems and initiate public campaigns. Such digital tools are becoming an important channel of feedback between society and the state and allow for a faster response to environmental and social challenges [8].

Digital activism in the field of ecology has received particular development. Online environmental communities have begun to form in Uzbekistan, and platforms for crowdsourcing and electronic volunteering are appearing. Citizens are increasingly turning to digital technologies to solve local environmental problems - from monitoring illegal tree felling to monitoring air quality. Actions organized in social networks are in some cases more effective

than traditional forms of collective action [9].

Experience shows that in the event of natural disasters or emergencies, digital communication channels become the main source of coordination and dissemination of information. For example, during dust storms in Karakalpakstan or floods in the Surkhandarya region, online initiatives and network volunteer movements played a significant role [10].

However, despite the growing interest in digital activism, scientific understanding of this phenomenon in Uzbekistan is still fragmentary. Unlike the extensive international literature, where digital civil activism is actively studied from the standpoint of theories of network society (Castells), digital democracy, civic science and environmental humanities, domestic research on this topic is still in its infancy [11].

Thus, the purpose of this article is to analyze modern foreign and domestic theoretical and methodological approaches to the study of digital environmental activism. In addition, the work attempts to adapt the existing theoretical framework to the conditions of Uzbekistan and identify prospects for further research in this area.

Research methods.

The methodological basis for the analysis was scientific publications presented in such international and regional databases as Google Scholar, Web of Science, Scopus, Elibrary, etc. The main key concepts used in the selection of literature were: digital environmental activism, electronic participation of citizens, ecology and digital technologies, crowdsourcing, crowdfunding, network mobilization, civic science, online activism, etc. In total, the study included more than 100 scientific articles published over the past 10 years. The analysis was carried out in the context of the need for scientific understanding of the digital transition of Uzbekistan and the search for effective models of involving citizens in sustainable development. The international scientific literature offers the following theoretical models of analysis: Network Society Theory (Castells, 2001): the digital environment as the basis for horizontal forms of interaction; Deliberative Democracy Hypothesis (Habermas, 1996); Concepts of civic science and crowdsourcing (Bonney et al., 2009); Theories of digital humanities and "environmental consciousness" (Parikka, 2015).

In Uzbekistan, there is no systematic research base in this area, although fragmentary publications appear in such publications as "O'zbekiston fanlari akademiyasi axborotnomasi", "Falsafa va huquq", as well as on the Google Scholar portal. It is important to note the need to adapt Western models to the realities of Central Asia, taking into account the specifics of digital inequality, religious and cultural sensitivity and limited access to network platforms in the regions.

Results

In modern scientific literature, two key approaches to the analysis of digital activism have been developed. The first emphasizes the universality of digital technologies, the second focuses on the practical activities of the activists themselves. This dualistic vision encourages researchers to a more comprehensive and critical understanding of digital activist practices. Thus, J. Garrett suggests that as a starting point for analysis, we should consider first of all the "mobilization structures" of the digital space, and only then its technical and technological characteristics. In this context, it is advisable to consider Internet technologies in three aspects: as a channel for accessing information, a means of communication, and a tool for accessing virtual public platforms.

The lack of a single scientific definition of digital activism is explained, in particular, by the fact that it is studied within the framework of many disciplines - from anthropology and sociology to political science, media studies, art and design. This gives the problematic interdisciplinary richness, but at the same time complicates the development of common approaches and conceptual apparatus. In this study, relying on both of these approaches, we will understand digital environmental activism as voluntary, selfless and collective activity carried out on the basis of common environmental values   and implemented through new information and communication technologies in the public space.

Modern ICTs provide society with fundamentally new channels for expressing civic positions and participating in collective initiatives, forming networked, decentralized models of interaction in which there is no traditional hierarchy and formalized leadership. The digital space is characterized by anonymity, diversity, flexibility and a high degree of adaptation, which makes it attractive for self-organization (GRANI Center, 2012). Moreover, digital technologies are becoming a significant tool for developing individual and collective competencies: they contribute to the development of skills in environmental monitoring, critical analysis of information and the formation of environmental literacy.

Networked communications that emerge in the digital environment become a source of resources needed for offline activism, including crowdsourcing and joint implementation of environmental initiatives (Zuo et al., 2016). An example is the use of mobile sensors by activists to measure air quality and then publish and visualize the data on online maps such as Google Maps (Baruch, May, Yu, 2016; Ventura, Mallet, Issarny, 2018). Such practices allow for a critical rethinking of official environmental statistics and the identification of environmental problems ignored by the state.

However, the digitalization of civic engagement is not without its contradictions. Along with the positive aspects pointed out by supporters of techno-optimism, there are a number of significant limitations emphasized by techno-pessimists. In particular, it is noted that the digital format of participation often leads to alienation from real forms of protest activity, replacing them with symbolic online participation. In addition, digital activity is not available to all segments of the population, which reinforces social and digital inequality - by territorial, age and technological characteristics.

These complexities are reflected in attempts to classify digital forms of participation. Thus, Harlow and Harp (2012) proposed the concept of "fast activism", which describes short-term forms of participation limited to simple actions on the Internet (for example, signing petitions), without moving on to offline initiatives. The author associates such forms with the phenomenon of "slacktivism" – low-intensity participation that does not involve significant time, emotional or resource costs. Unlike real activism, which requires effort and is associated with risk, slacktivism is more of an imitation of participation that brings symbolic moral satisfaction.

Such forms of digital interaction are highly dynamic and unstable: participants can easily join online movements and leave them just as quickly. In addition, the sustainability of virtual communities largely depends on the organizational initiative of individuals, since many groups are not ready to jointly distribute the organizational and financial costs necessary for long-term activity.

Digital environmental activism in the context of Uzbekistan is becoming an important channel for expressing a civic position, especially against the backdrop of increasing environmental challenges and developing digital infrastructure. In the domestic scientific and expert community, there is a growing interest in studying this phenomenon both from the point of view of the universality of ICT and with an emphasis on specific practices of civic participation, including in the environmental sphere. As in international theory (Kaun, Uldam, 2017), both approaches are relevant in Uzbekistan: technological universalism and an emphasis on the agency of activists. This is confirmed by cases, for example, on air quality monitoring in Tashkent or environmental initiatives in the Fergana Valley.

One of the key theorists of digital civic participation is Castells, who points to the special nature of digital space as a hybrid arena of autonomous communication. In Uzbekistan, where state digitalization is actively developing within the framework of the Digital Uzbekistan 2030 program and the Open Government concept, such a model is acquiring particular importance: digital platforms, including state ones, are beginning to perform the functions of public spaces. However, despite the emerging opportunities, barriers remain, in particular, the digital inequality between the urban and rural population, the youth and the elderly, men and women.

Digital environmental activism in Uzbekistan is predominantly of an observational and informative nature: dissemination of information, likes, reposts and petitions. Examples include

social media campaigns against tree felling in Tashkent, petitions against illegal construction in natural areas and support for waste recycling initiatives. These actions correspond to the Milbrath model of "observational" and "transit" digital activism (Milbrath, 1985). However, forms of "gladiatorial" actions – digital exposure or hacktivism – are practically non-existent, which is explained by both cultural factors (focus on consensus) and legal restrictions.

In Uzbekistan, digital activism, including environmental activism, is also manifested through citizen complaint and appeal platforms such as "my.gov.uz" and "meningfikrim.uz". However, the effectiveness of these platforms in the context of environmental issues varies: digital infrastructure exists, but is often not accompanied by adequate response and reaction mechanisms.

Weak institutional support for civil initiatives and insufficient environmental literacy among the population remain serious barriers. Despite the fact that courses on sustainable development are being introduced in schools and universities, according to the Center for Environmental Education under the State Committee for Ecology and Environmental Protection of the Republic of Uzbekistan, the level of citizens' awareness of digital environmental tools remains low.

Research conducted by Uzbek scientists (e.g., L.A. Kim, Sharipov, T. Ermatov, and others) points to the need for a comprehensive approach that includes education, community participation, and the development of digital competencies. In this regard, adapting "citizen science" approaches that involve residents in collecting environmental data—for example, through mobile applications for monitoring air pollution that can be used even with poor internet access—can be useful.

A critical aspect of digital environmental activism in Uzbekistan is the limited availability of digital resources: a low level of digital culture among some of the population, insufficient technical equipment, and weak cybersecurity. This requires adapting international models (including those developed within the framework of projects such as EU4Environment and OSCE Green Economy) to local conditions, including language, cultural code, digital literacy, and trust in institutions.

It is necessary to develop a research base on this topic in Uzbekistan, including interdisciplinary research in the field of social and digital sciences, ecology and law. Particular attention should be paid to youth initiatives, such as the Green Alliance of Uzbekistan, student clubs and hackathons held at universities (for example, at the Tashkent University of Information Technologies and the National University of Uzbekistan), where digital participation skills are formed.

Thus, the diversity of forms of digital participation opens up new prospects for researchers to study this phenomenon, including an assessment of its strengths and weaknesses in achieving real results, which activist activities are aimed at.

Conclusions

The lack of a unified approach to defining the phenomenon of digital environmental activism is due to its interdisciplinary nature. In this study, it is understood as voluntary collective activity based on common environmental values   and aimed at the public, selfless use of ICT to achieve environmentally significant goals.

Digital forms of environmental participation are ambiguous in nature. On the one hand, they change traditional models of interaction between citizens, the state and organizations, allowing citizens not only to perceive information, but also to actively produce and disseminate it. This expands the range of influence of civil society on decision-making, including in areas such as waste management, preservation of green areas, and combating air and water pollution.

Digital environmental activism is an important vector of interaction between civil society and the state in the information age. For Uzbekistan, focused on sustainable development and environmental safety, the systematic development of online environmental participation can become a powerful resource for environmental education and mobilization of citizens. Further

scientific development of the theoretical and methodological foundations for analyzing digital activism is needed, taking into account the national context.

In Uzbekistan, examples of local digital initiatives aimed at improving the urban environment are already emerging, especially in cities such as Tashkent, Nukus and Samarkand.

Analysis of digital environmental participation requires taking into account the diversity of online activities, depending on the degree of involvement and motivation of the participants. An example of a comprehensive approach to classifying such forms of activity is Milbrath's model, which identifies three levels of participation: passive (spectator), intermediate (transit), and active (gladiatorial). He also identified ten types of digital activity, including "clicktivism," digital petitioning, e-finance, consumerism, data activism, and even "botivism" and "hacktivism."

Despite the growing interest of citizens in modern digital solutions and the formation of new practices of participation in solving social and environmental issues, research in the field of digital environmental activism in Uzbekistan remains at an early stage. This gap requires a comprehensive analysis and systematization of existing approaches developed in both foreign and domestic scientific literature. International researchers, as a rule, focus either on the features of digital technologies that launch new forms of participation, or on the internal structure of environmental activism itself.

The study of digital environmental activism in Uzbekistan also requires the involvement of a wide range of disciplines - sociology, ecology, digital humanities, media communications, cultural anthropology and geography. Thus, sociologists analyze eco-mobilization, collective actions and behavioral attitudes of citizens, while researchers of digital technologies turn to theories of media, digital environments and social construction of technologies. These different focuses create methodological gaps, but at the same time - the potential for productive interdisciplinary synergy.

One of the promising areas is the use of digital environmental humanities as a theoretical framework that combines online and offline dimensions of environmental practices. This approach allows for a critical analysis of the production of environmental knowledge, its representation in digital environments, as well as communication barriers between virtual and real spaces. It is especially important to consider how environmental ideas and initiatives are transferred from the digital sphere to real actions, and what obstacles (technological, social, organizational) hinder this transition in the context of Uzbekistan.

The analysis of ICTs not only as an information channel, but also as a tool for mobilization is becoming relevant: for example, from the point of view of theories of social construction of technologies or usability assessment of platforms. At the same time, actor-network analysis, which is still little used in national studies, can become significant for understanding the nature of the connections between participants in digital communities, but is capable of shedding light on the configurations of interactions between participants in online eco-platforms and activist communities.

To reveal the motivations, values   and attitudes of users of digital platforms, social and psychological theories explaining involvement in environmental actions are useful. Milbrath's typology can be tested on Uzbek material, allowing us to identify the features of local digital activism, including taking into account cultural and institutional factors.

Thus, the proposed analytical approaches do not claim to be universal, but serve as an invitation to develop the research imagination, to form new empirical and conceptual perspectives for understanding the processes of digital environmental participation in Uzbekistan.

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