DIGITAL ETHICS CODE AS A TOOL FOR DEVELOPING NETWORK COMMUNICATION CULTURE IN UNIVERSITY ONLINE COMMUNITY

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The article presents a study of the digital ethics code phenomenon in the context of university online community functioning. The analysis of international regulatory documents governing ethical principles in the digital environment was carried out, with emphasis on «Ethically Aligned Design», «Ethics Guidelines for Trustworthy AI», and corporate artificial intelligence principles of leading technology companies. The digital ethics evolution was conceptualized through the lens of fundamental works by N. Wiener, J. Weizenbaum, and L. Floridi, who laid the theoretical and methodological basis of modern digital ethics. Based on a comparative analysis of the regulatory experience in digital ethics in Russia and Kazakhstan, the necessity of implementing a digital ethics code in the university environment is argued. A three-component methodological model of the code has been developed, integrating axiological, deontological, and praxeological aspects, aimed at forming a sustainable network communication culture of the academic community. The research contributes greatly to the development of theoretical foundations of digital ethics and offers practical recommendations for implementing ethical norms in the digital educational environment. The research results may be used in developing local regulations of higher educational institutions and improving the mechanisms for regulating online communication in the academic environment.

Keywords: digital ethics code, university online community, digital transformation of education, network communication culture, digital ethics, ethical principles.

ЦИФРЛЫҚ ЭТИКА КОДЕКСІ УНИВЕРСИТЕТТІК ОНЛАЙН-ҚАУЫМДАСТЫҚТЫҢ ЖЕЛІЛІК КОММУНИКАТИВТІК МӘДЕНИЕТІН ҚАЛЫПТАСТЫРУ ҚҰРАЛЫ РЕТІНДЕ

Сыздықбаева А.Д. – PhD, бастауыш оқыту педагогикасы мен әдістемесі кафедрасының қауымдастырылған профессоры, Қазақ ұлттық қыздар педагогикалық университеті, Алматы қ., Қазақстан Республикасы.

Мақалада университеттік онлайн-қауымдастықтың жұмыс істеуі контекстіндегі цифрлық этика кодексі феноменін зерттеу ұсынылған. «Ethically Aligned Design», «Ethics Guidelines for Trustworthy AI» және жетекші технологиялық компаниялардың жасанды интеллект корпоративтік қағидаттарына баса назар аудара отырып, цифрлық ортадағы этикалық қағидаттарды реттейтін халықаралық нормативтік құжаттарға талдау жүргізілді. Қазіргі цифрлық этиканың теориялық-әдіснамалық негізін қалаған Н.Винер, Дж.Вейценбаум және Л.Флоридидің іргелі еңбектері арқылы этикалық ойдың эволюциясы тұжырымдалды. Ресей мен Қазақстандағы цифрлық этиканы нормативтік реттеу тәжірибесін салыстырмалы талдау негізінде университет ортасына цифрлық этика кодексін енгізу қажеттілігі дәлелденді. Академиялық қоғамдастықтың тұрақты желілік коммуникативтік мәдениетін қалыптастыруға бағытталған аксиологиялық, деонтологиялық және праксиологиялық аспектілерді біріктіретін кодекстің үш компонентті әдіснамалық моделі әзірленді. Зерттеу цифрлық этиканың теориялық негіздерін дамытуға елеулі үлес қосады және цифрлық білім беру ортасына этикалық нормаларды енгізу бойынша практикалық ұсынымдар ұсынады. Жұмыс нәтижелерін жоғары оқу орындарының жергілікті нормативтік актілерін әзірлеу және академиялық ортадағы онлайн-коммуникацияны реттеу тетіктерін жетілдіру кезінде пайдалануға болады.

Түйінді сөздер: цифрлық этика кодексі, университеттік онлайн-қауымдастық, білім беруді цифрлық трансформациялау, желілік коммуникативтік мәдениет, цифрлық этикет, этикалық қағидаттар.

КОДЕКС ЦИФРОВОЙ ЭТИКИ КАК ИНСТРУМЕНТ ФОРМИРОВАНИЯ СЕТЕВОЙ КОММУНИКАТИВНОЙ КУЛЬТУРЫ УНИВЕРСИТЕТСКОГО ОНЛАЙН-СООБЩЕСТВА

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В статье представлено исследование феномена кодекса цифровой этики в контексте функционирования университетского онлайн-сообщества. Осуществлен анализ международных нормативных документов, регламентирующих этические принципы в цифровой среде, с акцентом на «Ethically Aligned Design», «Ethics Guidelines for Trustworthy AI» и корпоративные принципы искусственного интеллекта ведущих технологических компаний. Проведена концептуализация эволюции этической мысли через призму фундаментальных работ Н. Винера, Дж. Вейценбаума и Л. Флориди, заложивших теоретико-методологический базис современной цифровой этики. На основе компаративного анализа опыта нормативного регулирования цифровой этики в России и Казахстане аргументирована необходимость имплементации кодекса цифровой этики в университетскую среду. Разработана трехкомпонентная методологическая модель кодекса, интегрирующая аксиологический, деонтологический и праксиологический аспекты, направленная на формирование устойчивой сетевой коммуникативной культуры академического сообщества. Исследование вносит значительный вклад в развитие теоретических основ цифровой этики и предлагает практические рекомендации по внедрению этических норм в цифровую образовательную среду. Результаты работы могут быть использованы при разработке локальных нормативных актов высших учебных заведений и совершенствовании механизмов регулирования онлайн-коммуникации в академической среде.

Ключевые слова: кодекс цифровой этики, университетское онлайн-сообщество, цифровая трансформация образования, сетевая коммуникативная культура, цифровой этикет, этические принципы.

Introduction. The modern university is transforming into a hybrid educational space (Trede, 2019), where traditional forms of learning are integrated with digital technologies (Pinto, 2020), creating the need for clear ethical norms of interaction between teachers and students in the digital space of the university's «online community» [1-2]. The relevance of this issue is enhanced in the context of the growing role of distance learning technologies, social networks, and messengers in academic communication, which requires the development of high network communication culture and digital etiquette among all participants in the educational process (Jones, 2015) [3]. The absence of regulated ethical norms in the university's digital space leads to violations of academic ethics, emergence of conflict situations, and decline in the quality of the educational process, which directly affects the level of network communication culture of the university community. Special significance in developing a digital ethics code for the university community is given to the need to protect personal data of educational process participants, ensure information security, and prevent unethical behavior in the online environment as key components of digital etiquette. In the context of active use of educational platforms, online testing systems, and electronic portfolios, there is a need for clear rules for handling digital traces of educational activities (Spring, 2012) [4].

Research shows that the formation of ethical framework in the digital educational environment is becoming an imperative of the current stage of higher education development and the basis for forming network communication culture.

The experience of regulating digital academic culture in the European Union and the United States demonstrates a fundamental approach to developing network communication culture in higher education. The General Data Protection Regulation (GDPR) in the EU and U.S. legislation have created a legal framework within which university online communities develop their own standards of digital etiquette. Special attention is paid to behavioral norms in the virtual educational environment, where network communication culture becomes an integral part of academic interaction. The European Code of Conduct and the American concept of academic integrity define key principles of digital etiquette in the university online space, including communication rules in distance learning systems, ethical norms of interaction in academic social networks, and standards of behavior in virtual research communities. Specialized bodies in both regions develop recommendations for establishing network communication culture, taking into account the specifics of the university environment. The EU Digital Education Action Plan and corresponding American initiatives create a comprehensive foundation for developing network communication culture, encompassing all aspects of online interaction in the academic community – from formal communication on educational platforms to informal communication in university digital spaces [2].

Analysis of international experience demonstrates that leading universities worldwide are actively developing and implementing digital ethics codes that regulate the behavior of educational process participants in the online space. Special attention is paid to such aspects as netiquette in academic communication, rules for using educational platforms, principles of digital interaction within the educational process, and protection of intellectual property in the digital environment – key elements in forming digital etiquette for teachers and students.

The digital transformation of the educational process is accompanied by the emergence of new forms of academic interaction that require ethical understanding and regulation to ensure a high level of network communication culture. The use of proctoring systems, artificial intelligence technologies in education, and social media for academic communication creates a unique context in which traditional ethical norms require adaptation to digital reality. Under these conditions, the development of a digital ethics code becomes not only a tool for regulating behavior in the online environment but also a key mechanism for forming high network communication culture and digital etiquette among teachers and students in the digital space of the university's «online community» (Belousova, 2021) [5].

The research purpose: to study the phenomen on of the digital ethics code in the context of university online community functioning and its role in forming network communication culture and digital etiquette.

Research objectives:

1) to analyze international regulatory documents governing ethical principles in the digital environment, with special focus on "Ethically Aligned Design" and "Ethics Guidelines for Trustworthy AI";

2) to analyze the theoretical and methodological foundations of modern digital ethics based on the fundamental works of N. Wiener, J. Weizenbaum, and L. Floridi;

3) to analyze the methodological model of the digital ethics code, which includes three components: axiological (value-based), deontological (normative), and praxeological (practical);

4) to formulate practical recommendations for implementing ethical norms in the university's digital educational environment.

Materials and Methods. A digital ethics code represents a systematized set of moral and ethical norms and principles regulating the behavior of subjects in the digital space. This normative document formalizes ethical imperatives in interactions with digital technologies, artificial intelligence, and information systems (Becker, 2023) [6].

Structurally, the digital ethics code integrates the following key components:

- axiological basis – fundamental values of the digital environment, including confidentiality, transparency, fairness, and accountability of algorithmic systems.

- deontological component – a set of obligations and proper behavior in the development, implementation, and use of digital technologies, aimed at minimizing potential harm and maximizing public good.

- praxeological dimension – practical recommendations for implementing ethical principles in specific situations of digital interaction, including decision-making protocols and mechanisms for resolving ethical dilemmas.

Methodologically, the code is based on an interdisciplinary synthesis of information ethics, computer ethics, artificial intelligence ethics, and professional ethics in the field of information technology. It takes into account the specifics of digital transformation of society and the emerging new ethical challenges. The pragmatic significance of the code lies in forming a regulatory framework for responsible development and application of digital technologies, contributing to minimizing negative social consequences of digitalization and ensuring sustainable technological progress.

Historiographical analysis of the digital ethics code development demonstrates its consistent evolution from primitive forms of regulating interaction with computing systems to complex ethical-normative frameworks. The initial stage of formation (1940-1960s) was characterized by the formation of basic principles of information ethics in the

context of the emergence of the first computer systems. The subsequent period (1970-1990s) was marked by the integration of ethical norms into the paradigm of personal computer development and the formation of Internet space, which led to the crystallization of the concept of computer ethics.

The modern stage of digital ethics code development (since the 2010s) is characterized by increased attention to ethical aspects of artificial intelligence, big data, and digital transformation of society. There is an institutionalization of ethical norms through the creation of specialized committees, certification systems, and ethical oversight mechanisms. There is a trend towards globalization of ethical standards, which manifests in the formation of international alliances and universalization of digital ethics principles.

The functional role of the digital ethics code is implemented through a triad of directions: regulatory, preventive, and educational directions. In the regulatory aspect, the code forms standards of behavior in the digital environment and defines the boundaries of acceptable use of technology. The preventive function aims to minimize the risks of digital technology abuse and protect user rights. The educational component contributes to the formation of digital culture in society and the development of ethical consciousness among participants in digital interaction.

Thus, the digital ethics code represents a dynamically developing socio-technological phenomenon, whose role increases proportionally to the deepening of society's digital transformation processes. Its genesis reflects the evolution of public consciousness in the context of technological progress, and its functional significance is determined by the need for ethical regulation of digital space.

Results and Discussion. Currently, there is no single official document called «Digital Ethics Code», instead, there are various ethical principles and guidelines developed by different organizations and institutions, for example, «Ethically Aligned Design», «Ethics Guidelines for Trustworthy AI», Google's «AI Principles», and Microsoft has its own «AI principles» document with ethical principles for AI development (Table 1) (Shahriari, 2017; Smuha, 2019; Smit, 2020; Burle, 2020) [7-9].

Table 1 – Materials Regulating Ethical Principles

Document name	Features, note
Ethically Aligned Design (EAD), developed by the Institute of Electrical and Electronics Engineers (IEEE) during 2016-2019	A document that forms the methodological and conceptual framework for the ethical design of autonomous and intelligent systems (A/IS). This document integrates an interdisciplinary approach that combines technological imperatives with ethical principles and social values. The methodological basis of the document is founded on human-centric principles, prioritizing the protection of human rights, ensuring system transparency, and accountability for algorithmic decisions. Significant attention is given to the competency-based approach and preventive measures to prevent potential technology abuse. The document's architecture is structured through the lens of practical implementation of ethical principles in technological design. This is manifested in the detailed development of risk assessment methods, mechanisms for embedding value orientations into system architecture, and forming specific recommendations for implementing ethical principles at various stages of the A/IS lifecycle. A special place in the document is devoted to personal data issues and individual control, methodology for aligning A/IS functioning with human values, as well as issues of technological dependence and addictive behavior in the context of interaction with intelligent systems. The document also addresses critical aspects of autonomous systems application in the military sphere. The practical significance of the document is realized through the development of specific standards, verification methods, and audit procedures. An important aspect is the formation of metrics for assessing compliance with ethical principles and certification mechanisms, which ensures the possibility of practical implementation of theoretical concepts.
Ethics Guidelines for Trustworthy AI, presented by the European Commission in 2019	The document represents a comprehensive guide determining the fundamental principles and requirements for the development and implementation of artificial intelligence systems in the European space. The conceptual core of the document is the notion of «trustworthy AI», based on three fundamental components: legality, ethics, and robustness. The methodological basis of the guidelines is formed by seven key requirements for artificial intelligence systems: human oversight and control; technical reliability and safety; privacy and data governance; transparency; non-discrimination and fairness; environmental and societal well-being; accountability. The document explicates mechanisms for implementing ethical principles in the practice of developing and applying AI systems. Special attention is paid to algorithmic transparency, explainability of decisions made, and protection of fundamental human rights in the context of digitalization. The guidelines postulate the necessity of a human-centric approach, where AI technologies should serve to increase human well-being and comply with ethical principles. The document articulates specific methodological recommendations for assessing the reliability of AI systems, including technical and non-technical methods. A taxonomy of risks and mechanisms for their minimization in the development and implementation of artificial intelligence systems is presented. The guidelines also define the institutional framework for creating audit systems and verification of AI solutions' compliance with established ethical principles.

Continuation of table 1

AI Principles Google, 2018	A set of ethical principles and regulatory mechanisms in the field of artificial intelligence systems development and implementation, determining the fundamental aspects of responsible AI technology development and their integration into the social environment. The methodological basis of the document is founded on seven key principles that form a holistic paradigm for the ethical development of artificial intelligence. Primary importance is given to the social utility of developed technologies, excluding bias and discrimination. The document postulates the need to ensure AI systems' safety at all stages of their lifecycle, including testing and validation. Special attention in the principles is paid to privacy and transparency issues. The document regulates the need to maintain balance between technological efficiency and protection of users' personal data. The principle of transparency is implemented through the requirement for algorithm explainability and accessibility of information about their operating principles. The document also defines the boundaries of artificial intelligence technology application, explicitly excluding the development of systems potentially capable of causing harm to humans or violating ethical norms. Special emphasis is placed on the need for developed technologies to comply with scientific standards and principles of responsible innovation. In the context of practical implementation, the document establishes mechanisms for controlling and monitoring compliance with ethical principles, including internal audit procedures and external expertise. A system for assessing potential risks and mechanisms for their minimization at all stages of AI systems development and implementation is provided.
Microsoft «AI Principles», 2019	A corporate regulatory document that governs ethical principles for the development and implementation of artificial intelligence systems. The document is based on a human-centric approach that postulates the priority of human values and interests in technological development. Methodologically, the document is structured around six fundamental principles: fairness, reliability and safety, privacy and security, inclusiveness, transparency, and accountability. Each of these principles is detailed through specific implementation mechanisms and compliance metrics. The principle of fairness is implemented through systematic analysis and minimization of algorithmic biases, ensuring equal access to technologies, and preventing discrimination. Reliability and safety involve developing robust systems with predictable behavior and mechanisms for protection against potential risks. Confidentiality is ensured through the implementation of advanced personal data protection systems and respect for privacy rights. Inclusiveness is manifested through consideration of diverse user needs and creation of accessible interfaces. Transparency is implemented through disclosure of AI systems' operating principles and ensuring their decisions are understandable to end users. Accountability is achieved through establishing clear mechanisms of responsibility and control over AI systems' functioning. The document also defines procedures for monitoring compliance of developed technologies with established principles and mechanisms for correction in case of deviations. Regular updating of principles is provided for in accordance with technological development and changes in social context.

The term «digital ethics» and its corresponding principles began to take shape in scientific discourse with the works of Norbert Wiener (1948) in his book «Cybernetics», Joseph Weizenbaum (1976) in «Computer Power and Human Reason» and Luciano Floridi (1999) in his works on information ethics. The methodological foundation of all three researchers is characterized by an interdisciplinary approach to analyzing technological development, philosophical reflection on the role of computer systems in society, and emphasis on the ethical consequences of technological evolution. The commonality of issues is manifested in the study of responsibility for decision-making in human-machine systems, consideration of problems of control over technological development, and ethical aspects of automation.

Norbert Wiener, being a pioneer in this field, formulated the fundamental principles of cybernetic ethics, introducing for the first time the concept of feedback in socio-technical systems and emphasizing the communicative aspects of human-machine interaction. His systematic approach to ethical issues and the concept of scientists' social responsibility laid the foundation for further development of ethical thought in the field of information technology (Bynum, 2008) [11].

Joseph Weizenbaum, drawing on practical experience in computer system development, significantly expanded ethical discourse by focusing on criticizing excessive rationalization and computerization of human thinking. His phenomenological approach, based on analyzing specific examples of human-computer interaction, revealed fundamental limitations in computer thinking capabilities and emphasized the importance of preserving human subjectivity in the age of computerization (Guryanova, 2019) [12].

Luciano Floridi, developing the ideas of his predecessors, proposed a comprehensive philosophical concept of information ethics, introducing the notions of information ecology and infosphere as a global information environment. His macroethical approach allowed for considering information ethics as a fundamental philosophical discipline, formulating principles of ethical attitudes toward information objects and developing the concept of information well-being (Floridi, 2019) [13].

The temporal evolution of ethical thought from Wiener through Weizenbaum to Floridi demonstrates a sequential expansion of the subject field of research: from basic principles of cybernetic ethics through critical reflection on computerization processes to the formation of a comprehensive philosophy of information ethics that takes into account the realities of global information society. The methodological transformation from Wiener's mathematical and systemic

approaches through Weizenbaum's phenomenological analysis to Floridi's macroethical approach reflects a deepening understanding of ethical problems in the context of information technology development.

«The Code of Ethics in the Field of Artificial Intelligence», adopted in 2021, represents a national-level regulatory document aimed at regulating ethical aspects of artificial intelligence systems development and implementation in the Russian Federation. The document was developed with the participation of key technology companies and received institutional support from the Ministry of Digital Development, Communications and Mass Media of the Russian Federation. Methodologically, the code is based on principles of social responsibility, technological safety, and protection of human rights in the digital age. The document articulates fundamental principles for the development and application of artificial intelligence technologies, including algorithm transparency, personal data protection, non-discriminatory approach, and ensuring control over technological solutions. The semantic structure of the code includes a definitive apparatus that defines key concepts in the field of artificial intelligence, regulation of responsibility for AI systems developers and operators, as well as mechanisms for monitoring compliance with ethical norms. The document provides for voluntary adherence of market participants to the stated principles and standards (Zyryanova, 2021) [14].

The institutional significance of this document lies in creating a regulatory framework for digital technology development, taking into account ethical imperatives and social responsibility, laying the foundation for further development of self-regulation mechanisms in the technological sphere and forming a culture of responsible attitude towards the development and implementation of digital innovations.

The Republic of Kazakhstan currently lacks a single comprehensive document similar to the Russian «Code of Ethics in the Field of Artificial Intelligence» or similar international documents. Regulation of ethical aspects of digitalization is carried out mainly through general legislation in the field of information technology and data protection. However, there are the following relevant documents and initiatives (Resolution, 2022; Law, 2020) that can serve as a basis for developing a digital ethics code in the university online community [15-16]:

1. Within the framework of the state program «Digital Kazakhstan» (2018-2022), some ethical principles of digital transformation were established, although they are not separated into a distinct ethical code. The program emphasizes the need to observe ethical norms in the implementation of digital technologies and the formation of digital culture in society, which is especially relevant for the development of network communication culture in the educational environment.

2. In 2020, the Law «On Amendments and Additions to Some Legislative Acts of the Republic of Kazakhstan on the Regulation of Digital Technologies» was adopted, which partially addresses ethical aspects of digital technology use. This law establishes basic principles for protecting user rights in the digital environment and regulates responsible use of information technologies, which can be adapted for forming digital etiquette in the university online community.

The analysis of the existing regulatory framework in Kazakhstan demonstrates the need to develop a specialized digital ethics code for the university online community that would take into account the specifics of academic interaction and aim to form a high level of network communication culture and digital etiquette among teachers and students. Such a code should not only regulate ethical aspects of online communication but also contribute to the development of professional digital culture, ensuring effective interaction of all participants in the educational process within the university's «online community» digital space in the context of growing digitalization of higher education and the need to form unified standards of ethical behavior in the academic digital environment.

Conclusion. The conducted research demonstrates that the development of a digital ethics code in the university online community is a natural stage in the digital transformation of higher education. The analysis of international documents and the evolution of ethical thought allows for forming a methodological basis for developing local ethical norms in the university environment. The identified structural components of the code (axiological, deontological, praxeological) create a foundation for systematizing ethical principles of digital interaction. Comparative analysis of regulatory documents from different countries shows the necessity of considering national specifics when developing ethical standards. The integration of international experience with local practices of digital interaction in the educational environment becomes particularly significant for developing a digital ethics code for the university online community at the local level.

However, the implementation of digital etiquette codes in academic institutions faces several significant challenges. First, there is resistance from educational process participants, particularly among faculty members who view additional digital behavior rules as bureaucratic burden or encroachment on academic autonomy. Students feel excessive control over their online behavior and communication style on educational platforms. Technical resource limitations present another substantial barrier – many universities lack adequate infrastructure for proper implementation and monitoring of digital etiquette standards across all their online learning environments and communication channels, including limitations in digital platforms capable of effectively tracking and managing online interactions, tools for monitoring compliance with ethical standards, systems for secure data storage and processing, and shortage of technical staff to support these systems. The complexity of monitoring digital etiquette compliance creates additional challenges, including difficulties in distinguishing between academic and personal communication in digital space, challenges in establishing clear boundaries of acceptable online behavior, the need to balance privacy rights with monitoring requirements, cultural differences in communication styles and expectations, and the rapid evolution of digital platforms and communication practices. To overcome these barriers, universities need to develop clear implementation strategies that consider all stakeholders' perspectives, provide comprehensive training and support for all community members, invest in appropriate technical infrastructure, create effective but unobtrusive monitoring mechanisms, and establish clear response procedures for violations while maintaining respect for academic freedom. Success requires a balanced approach that promotes ethical digital behavior while preserving flexibility and respect for academic autonomy.

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