Using Generative Neural Networks as a Media in Education: Formal Analysis in the Context of the Russian Legal System

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Abstract

The article discusses using of generative neural networks in education, especially in legal education, as an example, employing formal analysis in the context of the Russian legal system. Neural networks are considered as a kind of media and hence the issue of using neural networks by students is by nature a question of media education, its application, and its limits. The core question is whether it is possible to give students the opportunity to use generative neural networks when performing tasks like writing a diploma. Neural networks are considered as a kind of "new media" that must be assessed in the context of the media philosophy dichotomy between "tool" and "body". The article reviews several scenarios of law students using neural networks and the conclusion is provided that not in all cases it is inadmissible. However, in the cases that concern the core competences that relate to understanding law as a phenomenon of information and communication, it is inadmissible. Such core competences imply command of natural language and writing reasoning skills. It is critical to take into an account the provisions of the legislation that focus on the concept and purposes of education which clarify the matter on the formal side. Ultimately, the *"blackout test"* is suggested to discern the cases were using of neural networks in education is not possible.

Keywords: law, media education, media and information literacy, MIL, new media, mass communication, neural networks, generative AI, large language models

1. Introduction

The article is dedicated to the use of generative neural networks as a media in education (especially in legal education) in the context of the Russian legal system. We address the topics of more than ten years issues such as: (a) media education today can be considered not only by mass communication processes but also contemporary non-mass forms of communication (Sharikov, 2012: 75); (b) the construct of media and information literacy (MIL) seems to be underperforming compared to media education (Fedorov: 2013: 73; Kačinová, 2018; Petranová et al., 2017; Šupšáková, 2016) because of the problem of using generative neural networks, which we know little about at the time.

In 2022, "The Information for All" public movement returned to the practice of holding the conference "Law and the Internet" with a section "Artificial Intelligence" where, among other things, there was a discussion about training lawyers in this difficult field. The new representatives of the specialized legal community will have to understand digital entities along with legal entities,

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but also philosophy, ethics and culture, including, first of all, media culture, for which the question of the connection of the issues with media education becomes logical and justified. As well it is justified due to the fact that members of the "Information for All" expert community are now working both on the platform of the conference "Law and the Internet" and within the framework of the "Media Education" program being implemented.

By 2024 the words "neural network" are heard more and more often in many areas. In turn, a kind of "new problem of the year" for educational institutions in 2023 was the use of generative neural networks by students. The story of a student of a Moscow higher education institution who used ChatGPT-3 to write his diploma and subsequently described the experience in detail is widely known (and has already received coverage not only in the media, but also in academic publications). As indicated, he used the program to compose at least an introductory and theoretical part. The supervisor's comments were insignificant, and the formal "percentage of originality" was high enough (Yaroshenko, Savushkin 2023: 281-282). This expected circumstance has generated a lot of discussions, and we do not see any uniform approach.

The question of whether it is possible to give students the opportunity to use generative neural networks when performing tasks like writing a diploma remains acute. The answer may depend on the specialty of education, but the problem is also objectively complicated by the fact that the "progress" (spread of practices of using generative neural networks) in general is not only apparently unstoppable, but also cannot be balanced directly by any verification tools. The text produced by a neural network ultimately lacks any metadata that would allow one to establish with a sufficient degree of legal certainty that it originated in this way and not simply, say, poorly (if applicable at all) written. Moreover, not all applications of neural networks raise direct and obvious ethical questions. What about, for example, a case when a learner (or even more so an established academic scholar) uses a translation made by a neural network for secondary purposes not related to his direct competences? Let us try to formulate one of the possible approaches, taking as a model the specialty of education that unites all co-authors and evaluating the ideas in the light of the current legislation.

Indeed, today there is a huge number of publications that analyze to varying degrees the interdisciplinary aspects of the use of neural networks, including in education (as the newest example: Sidorkin, 2024), but there is a lack of formal legal analysis of the possibilities of their application in terms of fundamental legal concepts reflected in the current legislation. The article presents the experience of overcoming this gap as well. It should be noted that the scope of the study includes only the issue of the limits of permissible use of generative neural networks by students in the educational process. Legal education is taken by us as a basic example. This choice is dictated not only by the fact that jurisprudence unites all the authors. It seems that considering the issue of the article on the example of legal education can be valuable. On the one hand, this type of education is classical and still uses many traditional educational technologies. This fact allows us to take into account the results for a wide range of educational specialties. On the other hand, the requirements for a law student are specific, because it is not only about mastering "neutral" professional tools, but also about cultivating a special form of thinking and value perception.

Thus, in the context of the issue, media education is involved in two aspects. First, the development of an optimal attitude to neural networks in the educational process is a part of media education itself, because generative neural networks, as will be discussed later, are modern media themselves. Second, the use of neural networks as new (or even "newest") media is considered on the example of legal education.

The issues of using neural networks to manage the educational process itself, to allow predictive analytics of student performance, etc. are excluded from the subject of the article. Many of these issues deserve separate attention. For example, the mentioned area of application of predictive analytics is a very lively issue itself, as taken from the humanitarian perspective, like the issue of admissibility of predictive analytics of judicial decisions, now limited in some countries. Also, the article does not analyze general pervasive legal issues of neural networks related to personal data, intellectual rights, etc.

2. Materials and methods

The main sources of this article were the papers of other authors, as well as the text of normative legal acts, primarily the Federal Law of the Russian Federation dated 29.12.2012 № 273-FZ "On Education in the Russian Federation". In addition to general research methods,

the study implies the use of the formal-legal (dogmatic) method of cognition, considered as a special method of legal science and including deductive-axiomatic and hypothetico-deductive methods of reasoning as the main components. The first of them involves the analysis of normative material with the conditional acceptance as "axioms" of its provisions, and then – the application of techniques and methods of interpretation of law. The hypothetico-deductive component involves the initial formulation of a hypothesis about the possible result of legal interpretation, which is then confirmed or refuted. This method allows establishing the content of positive legal regulation, assessing its formal certainty, and establishing its conceptual limits. Thanks to this, the analysis of the application of generative neural networks by students is not carried out in the abstract, but in relation to a specific regulatory environment. At the same time, based on the history of development of the main cited normative act, such research can be considered as representative for those legal systems that assume similar regulation from the point of view of comparative legal approach.

3. Discussion

Our primary focus is on generative neural networks that belong to "large language models" ("LLMs"), i.e., those capable of performing general-purpose text generation based on machine learning, examples of which include ChatGPT (OpenAI) or GigaChat (Sberbank). Technically, from a "functional" point of view, such neural networks differ from "expert systems" as an example of the "first wave" of artificial intelligence (Susskind, 2019: 264-265) – they "learn" from big data and can operate on any kind of data. That said, "at its core, deep learning is a statistical method for classifying patterns, based on large amounts of sample data, using neural networks with multiple layers" (Hunter, 2020: 1215). This technical description is generally important for understanding the general origins of the problem, but for the issue at hand it is fundamentally different – these kinds of neural networks are used by students to avoid doing the assignment themselves, but there is no third party "living" agent to do the assignment instead of the student (as in the more "usual" cases of academic misconduct, where someone with agency and special knowledge writes the work instead of the student). Moreover, producing a result using a neural network is not a passive process. This action requires writing the task for the software, which is itself an intellectual act and makes the problem multi-faceted. The implied context of having a "tool", a "smart yet controllable assistant" and certain skills of interaction with it makes us pay attention to the media philosophical dimension of the problem, in which the issues of the relationship between the agent and the tool are actualized.

Neural networks are considered as a kind of media and hence the issue of using neural networks by students is by nature a question of media education, its application, and its limits. From the point of view of media philosophy, generative neural networks – a phenomenon that has become so popular in the world – certainly belong to the "new" (or even, as we may ironically note, the "newest") media. L. Manovich characterized the "new media" by the idea that they are expressed in the form of numerical representations, are "modular" ("fractal"), automated, variable, and characterized by the phenomenon of "transcoding" (Manovich, 2001: 30-47), all of which are applicable to neural networks and convey a significant part of their general qualities. At the same time, unlike many other examples of the "new media", generative neural networks are characterized by an unprecedented degree of automation and, as a result, they are considerably more distant from the agent as compared with other kinds of the "new media".

It is this circumstance that will determine the essence of further analysis. Neural networks are becoming part of the toolkit in many professions, and the legal profession is not an exception. Will generative neural networks become (or "are they already?") an imperceptible technical "extension" of humans, just as it is with more familiar tools (i.e. media)? The question is not only purely metaphorical in nature. Contemporary media philosophical studies emphasize that the *interface* is not even just something through which a person is represented in the digital world, but an extension of his or her "body" in the broad interdisciplinary sense of the word.

In this case, the "body" is a "corpus of instrumental practices and ways to find sensual experience/experience of 'technical images' that represents the body most adapted for survival in the media environment" (Ocheretyany, 2015: 143). Leaving aside the debate about the extent to which it is permissible to speak of a "body" in this case, in the light of the discourse of media studies, the question can be raised as to whether neural networks should be viewed as an external tool or as part of the "incarnation"/"reflection" (i.e. "body") of a person in digital space. This question may only at first glance seem speculative on the practical side. In fact, the applied

discussion about the possibilities and limits of using neural networks in the modern educational environment is centered around this question.

Although the use of generative neural networks is often discussed uncritically in news publications, journalistic articles, and everyday discussions as a general phenomenon, in reality the situation is more complex and calls for a more differentiated approach. This is mainly due to the different ways of using generative neural networks (while neural networks themselves may allow one or more ways of use, including in combination with other similar tools). Generative neural networks that allow text generation are usually at the center of the discussion. At the same time, there are also neural networks that allow processing in a certain way of the information that is not created directly by them but is provided "from outside". Neural networks used to translate text from one language into another belong to the latter type. Let us try to define several typical situations of using neural networks in legal education, which form the actual compositions that we will keep in mind during the formal legal analysis of the problem. Let us present them in the form of a table and give a preliminary assessment of admissibility based on generally accepted standards of common sense.

Table 1. Scenarios of law students using neural networks and their preliminary assessment

Scenario	Example	Preliminary assessment
Using a generative neural network to complete a written paper assignment in a case in which the student is required to write the paper independently, without the students' actual input.	Using of ChatGPT for writing a qualification paper (diploma) in jurisprudence, or a part of such diploma. In this case, the student does not edit the text.	Unacceptable (regardless of the need to be able to set tasks for a neural network), as this part of legal education is aimed at building and testing writing reasoning skills, and not skills in the area of computer science. The latter are important, but pertain to completely different area.
Using a generative neural network to complete a written paper assignment in a case in which the student must write the papers independently, but the student responsibly edits the text.	Using of ChatGPT for writing a qualification paper (diploma) in jurisprudence, or a part of such diploma. In this case, the student does edit the text.	It is also unacceptable (sic!), and also because this part of legal education is aimed at forming and testing writing reasoning skills. At the same time, there is a difference from the first option here: such behavior may be permissible in similar cases in professional activities, provided that the subject is a responsible professional.
Using generative or other neural network to find sources and/or perform other "mechanical" work related to searching and sorting of information.	Using ChatGPT to find preliminary sources on a topic under certain research assignment.	(For the sake of brevity, we do not split this situation into two subtypes as before). Acceptable, but subject to personal professional verification of the results.
Using generative or other neural network to perform functions that are not a required part of the competencies being mastered.	Application of translation tools based on machine learning (Yandex Translate, Google Translate, Deepl, etc.) of sources in a foreign language, including for translation of quotations from them (in a situation where it is not a lawyer who should be qualified with knowledge of the relevant language).	Acceptable, but subject to personal professional verification of results and/or verification of results by third party professionals, and transparency declaration of the process.

This illustrative generalization shows that the issue should be handled differently depending on the specialty and its nuances. Thus, for example, in Option 4, the demand from students (especially law students) without presumed knowledge of a foreign language should by definition be less than from lawyers with presumed knowledge of a foreign language – in the latter case, it is their direct knowledge that should also be tested. It is also clear that if the literary writing skills in one's professional field are not required in principle, the "editable" use of ChatGPT with a declaration of transparency of its use can also be allowed. For now, however, all this is an option for discussion. Anyway, our approach is based on the notion that it is mandatory for a lawyer to speak a natural language (or several natural languages), and it is not just a technical necessity. Such a state of affairs is closely related to the nature of law as a phenomenon centered on the text in the broadest sociocultural sense.

Of course, not even all the authors of this article agree with the communicative approach to law (with which others agree, however), but its central position – understanding law as an information and communication phenomenon in the center of which, nevertheless, there is a living agent who interprets and experiences values (Polyakov, Timoshina, 2017: 19) – for practical teaching purposes does not raise any substantial questions. A lawyer must have a command of language, it is primary competency. Without it, a lawyer – in the digital environment – turns into an information system operator. Such specialists will certainly be needed, and maybe in greater numbers, but a true higher legal education implies acquiring more than just technical or computer science skills. A specialist who can verify the results of a neural network is a specialist who can reproduce the process without using it. Research and practice show that using of generative neural networks (and artificial intelligence in general) with a high degree of delegation from human beings, especially law students and lawyers, can result a high risk of discrimination (Lee, 2018: 255), and violation of human rights (Brennan et al., 2009: 26-27; Southerland, 2021: 493; Werth, 2019: 10-11). In addition, legal education is unthinkable without the formation of personality and value worldview, understanding of general approaches and logic of legal regulation (Belov, 2023).

At the same time, it is crucial that all the problems under consideration are not abstract and that they relate to the current regulatory environment. Many things become clearer if we move from abstract reasoning to formal-legal analysis of the provisions of the current legislation. Thus, it is necessary to pay attention to the basic definitions established in the Federal Law No. 273-FZ "On Education in the Russian Federation" dated December 29, 2012 (hereinafter – the "Education Law"). Thus, according to Item 1 Article 2 of the Education Law, "education [is] a single purposeful process of upbringing and learning, which is a socially significant good and is carried out in the interests of the individual, family, society and state, as well as a set of acquired knowledge, skills, abilities, skills, value attitudes, experience of activity and competence of a certain volume and complexity for the purposes of intellectual, spiritual and moral, creative, physical and (or) professional development of a person, satisfaction of his/her educational needs and interests". From the point of view of ideas about the logical structure of a legal norm, definitions of normative legal acts contain part of the hypothesis of legal norms. On this basis, it can be concluded that those phenomena that do not meet the definition cannot be attributed to "education".

In the light of this consideration, it is fundamental that the scope of the concept of "education" includes, among other things, "a set of acquired knowledge, skills, abilities etc.", and the goal in this case is, among other things, "intellectual, spiritual and moral, creative, physical and (or) professional development of a person". Thus, the use of generative neural networks by students will be a part of "education" only in the sense in which it meets these parts of the definition. Based on this consideration, we can assume, for example, that the use of a generative neural network by students in specialties (directions) that involve the formation of skills exactly in the use of generative networks, and at the same time in the part in which such skills are mastered (and tested!) will correspond to the concept of "education". At the same time, in other cases – for example, when a learner who must perform a writing task independently – the use of a generative neural network at the most general level will not correspond to the concept of education. This conclusion has logic priority even over the question of the legitimacy or illegitimacy of the use of neural networks, although, as we pointed out above, in some cases their use seems to be strictly inadmissible.

The application of generative neural networks can be considered in the context of other general provisions of the Education Law. In particular, we should note *inter alia* the following basic principles of state policy and legal regulation of relations in the field of education: ensuring the right of everyone to education and the inadmissibility of discrimination in education (Item 2

Part 1, Article 3); humanistic nature of education in accordance with traditional Russian spiritual and moral values, including, *inter alia*, the priority of individual rights and freedoms, free development of the individual, education of mutual respect, diligence, and responsibility (Item 3 Part 1 Article 3); inadmissibility of restriction or elimination of competition in the field of education (Item 11 Part 1, Article 3). It is also pertinent to note here the following general duties and responsibilities of students: conscientiously master the educational program, fulfill the individual educational plan, including attendance of classes provided for in the curriculum or individual educational plan, preparation for classes with own efforts, fulfill assignments given by teaching staff as part of the educational program (Item 1 Part, 1 Article 43); comply with the requirements of the charter of the organization carrying out educational activities, internal regulations, including requirements for discipline at classes and rules of conduct in such organization, rules of living in dormitories and boarding schools and other local normative acts on the organization and implementation of educational activities (Item 2, Part 1, Article 43). The use of neural networks can be analyzed in terms of each of these principles and each of the responsibilities of learners and summarized as follows.

Table 2. Potential interpretation of certain provisions of the Education Law in the context of the "neural network problem"

Provision of the Education Law	Potential interpretation in the context of the "neural network problem"
Ensuring the right of everyone to education and the inadmissibility of discrimination in education (Item 2 Part 1 Article 3)	The use of "third party assistance" (both of human agents and AI), as a rule, is incompatible with the concept of education. Uncritical acceptance of results from those students who use and those who do not use neural networks leads to discrimination. Neural networks themselves can be trained on discriminatory material.
Humanistic nature of education in accordance with traditional Russian spiritual and moral values, including, *inter alia*, the priority of individual rights and freedoms, free development of the individual, education of mutual respect, diligence, and responsibility (Item 3 Part 1 Article 3).	Unless we take into an account quite specific cases of computer science, free development of personality is incompatible with "delegation" of principal tasks to neural networks. When they are used unfairly, mutual respect towards other students and teachers is violated. Hard work and responsibility are not demonstrated.
Inadmissibility of restriction or elimination of competition in the field of education (Item 11 Part 1 Article 3).	Uncritical acceptance of results from learners using and not using neural networks among different institutions on a large scale leads to a violation of fair competition.
Duty of students to conscientiously master the educational program, fulfill the individual educational plan, including attendance of classes provided for in the curriculum or individual educational plan, preparation for classes with own efforts, fulfill assignments given by teaching staff as part of the educational program (Item 1 Part 1 Article 43).	The key problem is how to set the criterion of "own efforts", provided that the neural network can be perceived as just a "smart tool". We propose to take into account the approach from Table 1 and the principle outlined below.
Duty of students to comply with the requirements of the charter of the organization carrying out educational activities, internal regulations, including requirements for discipline at classes and rules of conduct in such organization, rules of living in dormitories and boarding schools and other local normative acts on the	As a rule, local normative acts presuppose independent, with own efforts, execution of tasks without the possibility to use auxiliary tools, unless otherwise expressly provided. Similar to the above.

Provision of the Education Law	Potential interpretation in the context of the "neural network problem"
organization and implementation of educational activities (Item 2 Part 1 Article 43).	

4. Results

As a result of all the reasoning presented above, the general principle is quite clear and can be formulated as follows: in the case if any of the components of the concept of education (knowledge, abilities, skills, values, competences) implies that the learner should perform it independently (i.e. with own efforts) in terms of a particular specialty, direction of education or other similar category, it cannot be performed using a generative neural network. Otherwise, the generative neural network is used *de facto* as an auxiliary tool. Whether or not a generative neural network is such a tool, or it is used in contradiction with the logic of the educational process can be established only by focusing on this general principle and based on the specific context of the situation. Thus, for example, the use of a neural network for the purpose of translating documents from one language into another would be an auxiliary tool for a lawyer whose training does not involve the acquisition of competencies in foreign languages, but the use of such a network would violate the logic of the educational process in the case of training a lawyer who acquires competencies in a foreign language and, even more so, for a translator.

Let us emphasize that it is precisely the educational process we are talking about. If a translator who has subsequently received the "appropriate" (in the meaning of this article) education uses a generative neural network to prepare a draft version of a translation with subsequent editing, there will be nothing objectionable in this.

5. Conclusion

In a sense, the approach suggested in this article can be called the *"blackout test"* (in the meaning of *"electricity failure test"*): a specialist, within the limits of specific competencies and other such indicators, should be able to do his or her job even if the devices powered by electricity are not working. So, for example, a legal practitioner should obviously be able to write a statement of claim with a pen on a piece of paper without using not only neural networks, but also legal databases and a text processing software. Otherwise, such a specialist cannot be said to have a real legal qualification. This hints at the fact that, from the point of view of media studies, the principle proposed in the article implies theoretical modeling of such conditions of a specialist's activity, under which he or she is hypothetically acting at the "lowest" realistically permissible level within the framework of a given society and historical conditions of the media.

And, in any case, the percentage and cases of using neural networks must be declared. It seems that this rule – in spirit corresponding to the principle of "transparency" of application of artificial intelligence technologies in general – should become a new standard of academic ethics. At the same time, such a rule needs to be balanced by the recognition that with proper self-restraint and responsibility, artificial intelligence can be used in academic life (and probably should).

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