

Incorporation of Anti-Corruption Digital Content into Engineering Education

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Abstract. Vocational education of a modern person is a comprehensive acquisition of knowledge not only in the field of a future specialty but also in the field of anti-corruption norms and rules that extend their effect to the field of activity of a future engineer. The requirements for the level and quality of modern vocational education determine the objectives of modern vocational education in professional educational institutions of higher education. The effective use in the educational process of the achievements of modern digital technologies in the study of non-core disciplines is a prerequisite for the formation of a professionally-oriented personality, with a high level of anti-corruption legal consciousness. The subject of the study was the capabilities of modern technical means for transmitting the studied information of anti-corruption content to the student, the prospects for the development of their use in studying the provisions of the legislation on anti-corruption regulation in the Russian Federation. The method of this study was – the analysis of the modern digital environment of the educational process.

1 Introduction

The most important area of activity of the Russian Federation is the fight against corruption as an urgent threat to the development of modern society in all its fields: social, political, economic, cultural. Also, this negative social phenomenon is recognized as a serious problem of ensuring national security, is associated with the inability to implement democratic values, the formation of a rule of law state, and civil society.

The young generation is a special socio-demographic group, on which the further development of such spheres in the state and society, as public administration, economic relations, industrial development, the social sphere, that is, people of this age group determine the future of the Russian Federation.

The relevance of the research topic is determined by the fact that the Russian Federation, other states, and the world community recognize corruption as one of the dangerous social phenomena of our time. Moreover, periods of growth or decline in corruption in each particular country reflect the historical path of development of the political, economic, and social systems of society. Corruption processes are complex and diverse, with a change in the social, political, economic, legal systems also undergo

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changes, adapt to existing conditions. The weakening of state control in the field of combating corruption can lead to a sharp surge in corruption offenses if the level of legal consciousness and legal culture in society is at a low level.

Moreover, the interest in studying the problem of corruption and finding the most useful ways for society and the state to counteract it is a sphere of scientific interest for many researchers, scientists, lecturers, economists, lawyers, political scientists, sociologists, and philosophers, since the spread of corruption as a harmful phenomenon entails ensuring uneven distribution of resources, public goods, limits competition, and entrepreneurial activity, reduces distrust of laws and regulations, activates the processes of the latent commission of offenses with corruption goals, causes disappointment in the activities of state bodies and the country's leadership.

The object of the study is the modern capabilities of electronic and virtual technologies applicable in the educational process for the effective incorporation of anti-corruption content that affects the formation of the necessary level of legal consciousness of anti-corruption measures by future engineers and students in technical areas whose professional activities are not related to the humanities and social sciences.

The study aims to analyze the current state of legal information in the field of anti-corruption, the possession of which is necessary for young professionals, as well as scientific research in this area, as well as modern opportunities and prospects for the use of digital technology in the study and incorporation of anti-corruption knowledge for technical students specialties. This goal of the study involves solving the following tasks:

- a brief outline of the current laws and regulations in the field of combating corruption, significant for the modern citizen and specialist, both of an international nature, and legal and by-laws of the Russian Federation;
- analysis of the main approaches to the definition of the concept of “corruption”;
- identify the necessary minimum of knowledge necessary for orientation in the field of corruption risks in the incorporation of engineering professional activities;
- identify and analyze the socially and professionally significant consequences of studying anti-corruption blocks of information, the practical application of acquired knowledge not only in the performance of labor relations but also in ordinary private life.

The basis of the methodological base of the conducted research is the general methodology of scientific cognition.

The author of the study indicates that corruption processes are common not only in state and municipal bodies and among officials, but also in non-state entities, such as non-governmental organizations, commercial and non-profit organizations, private companies, sole proprietor, individuals, since corruption is possible there, where it is possible to dispose of material values, resources.

As a result of some scientific research, it is concluded that moral values and bearings have changed in modern society, there is a low level of respect for the law, in a sense, bribery is perceived by the young generation as a way of life and does not have a sufficiently serious negative response in society [1].

A serious problem in the field of combating the spread of corruption is the recognition of illegal actions in the provision of a certain service using their official position as a specific achievement, while the social status of people with access to the organization's resources and the ability to dispose of them is much higher than a person who does not have such opportunities. For people who graduate from an educational institution that falls into distorted perceptions of corruption, this may be the result of professional deformation, the application of legal liability in the form of disciplinary, civil, administrative, and even criminal.

Young people studying in vocational educational institutions and engaged in scientific activities make their adjustments to the formation of the social system. Therefore, the use of

value guidelines, behavioral patterns, the perception of laws and regulations, and consciousness of legitimate behavior should be used as the only option in the moral worldview.

In this study, it is planned to study the existing experience of consciousness of corruption as a negative social phenomenon that manifests itself in all areas of public life, as well as the experience of incorporation of anti-corruption content into higher education. Also, it is of particular interest to use the capabilities of modern digital technologies in the study of material for students in non-core specialties, in particular in the field of engineering education in technical institutions of higher education, which can effectively provide anti-corruption information for students.

The formation of legal culture and legal consciousness, professional and ethical perception of the profession in the youth environment is a unique process that allows one to generate a level of legal consciousness that defines corruption as a negative phenomenon that is harmful to public relations, as well as a threat to the national security. Education on the prevention of corruption offenses and raising the consciousness of youth in this area has an important role in the fight against corruption [2].

Currently, the level of development of digital technologies that are actively used in all areas of the state and society entails the development of a "smart university" - such an element of the educational environment of intellectual education, a kind of intellectual platform or infrastructure that ensures the incorporation, use, and development of intelligent technologies in education [3].

2 Research review

Many scientific studies indicate the need for the formation of an anti-corruption legal consciousness of officials of state bodies that implement state policy in certain areas, it is emphasized that the formation of anti-corruption behavior fixed at the level of conscious volitional actions of a stable nature depends on the subjective perception of the situation by the authorities [4]. These conclusions are primarily related to the fact that corruption is defined by Russian legislation as abuse of power or authority, giving a bribe, receiving a bribe, commercial bribery or other illegal use by an individual of his official position contrary to the legitimate interests of society and the state to obtain benefits in the form of money, valuables, other property or property services, other property rights for themselves or third parties, or illegal provision of such benefits to the specified person by other individuals, as well as the same actions committed on behalf of or in the interests of the legal entity. In this case, the question of a special study of the information constituting the anti-corruption base is especially acute.

At the same time, the need for the legal development of an anti-corruption block of knowledge in Russian society among a student in the field of technical specialties is also high.

Modern technical education is a strategic resource of the country [5], the more improving the quality of educational services in higher education is a prerequisite for the competitiveness of trained specialists, the formation of professionally trained personnel of the necessary level of the negative perception of corruption as a socially dangerous phenomenon, the spread of such a vision among young people, preventing future corruption offenses in the course of work activities, as well as outside it.

Modern graduates of higher technical educational institutions in their professional activities face a variety of corruption risks: abuse of power or authority, placement of state orders and contract awards, entrepreneurial activity, export relations of an organization, industrial espionage, working with official information and using it for personal purposes, disclosure trade secrets of the organization and so on.

Some scientific studies address the problem of combating corruption on a national and social scale [6], the author analyzes the problem of defining the concept of “corruption”, based on studies of successful anti-corruption efforts in Botswana, Chile, Estonia, Georgia, Slovenia, South Korea, Taiwan, and Uruguay, analyzes and evaluates historical experience with theories and current reports, describes the problem of creating a norm of ethical universalism, which will reduce corruption. A serious conclusion in this study is the consciousness of the fight against corruption as a long and difficult path, and the change in moral social standards is recognized as an effective way to achieve anti-corruption goals.

In many countries, corruption is recognized as one of the most important problems of our time. In some states, attention to anti-corruption education programs has been spreading since high school, when the incorporation of educational programs containing information on corruption and its’ combating it is an additional contribution to the process of teaching social sciences. It is assumed that thanks to anti-corruption education, the young generation will be able to understand and realize that the availability of anti-corruption tools and successful combating to it can lead to the qualitative development of the welfare of the whole society [7].

In the modern era, progress in the development of society and economic growth largely depends on the quality of the university sector. The emergence of a new generation of young people who know how to handle computer technology and other modern methods of virtual data transfer requires a review of obsolete training courses. These possibilities of incorporation of digitalization into the educational process increase the competitiveness of educational institutions, the success of universities, and their relevance [8].

3 Issues of the anti-corruption policy requiring study by a modern specialist

One of the problems in assessing corruption risks in the professional sphere and the performance of labor duties is the fact that these issues are not properly and adequately addressed during the training period, since the training of a specialist is primarily focused on the area of his future professional activity, which does not allow the young specialist to rely on clear laws and regulations but forces him to act by his ideas about proper professional behavior, about corruption offenses and legal liability for their commission. It is often difficult to understand the laws and regulations of an anti-corruption orientation without special training.

Areas of knowledge of the anti-corruption policy that takes place in the Russian Federation include, first of all, clarification of the terms by the students who operate the anti-corruption legislation. However, one should also take into account the fact that the laws and regulations of the term “corruption” differ from the understanding of corruption in the social aspect. The most common associative series arising from the use of the word “corruption” is the abuse by an official of his duties for the mercenary purpose, bribery. At the same time, the term “corruption” in a broad aspect means a system of certain informal relations that replace officially acceptable rules of behavior, often replacing formal relations in social interactions, that is, this is the relationship between individuals included in a certain network of interactions, and social relation, and a certain structure assimilated by the individual in interaction with society [9].

The formation of a negative attitude to corrupt practices in the modern youth environment, as well as among students in educational institutions of higher education, is based on the study of the legal framework of the anti-corruption focus. So, special attention should be paid to international documents adopted by the United Nations General Assembly to recognize corruption as a problem of international scale, as well as in interstate, interpersonal relations.

The main international anti-corruption documents supported by most United Nations member states are the “United Nations Convention against Corruption” (adopted by Resolution 58/4 at the 51st plenary meeting of the 58th session of the UN General Assembly on October 31, 2003) and the “Criminal Law Convention on Corruption” (concluded in Strasbourg on 01/27/1999).

Current Russian legislation on the anti-corruption policy includes Federal Law of December 25, 2008, No. 273-FL “On combating corruption”, Federal Law of December 3, 2012, No. 230-FL “On monitoring the conformity of expenses of persons holding public office and other persons with their income”, the National Anti-Corruption Plan for 2018-2020, approved by President Decree of June 29, 2018 No. 378.

Laws and regulations in this area, both federal and operating in the territories of the constituent entities of the Russian Federation, as well as in certain areas of government, are the subject of discussions in the scientific community [10, 11, 12, 13], and extend their effect to all areas of social life, constitute basic knowledge in the field of anti-corruption.

4 The possibilities of modern technology in the study of anti-corruption standards

The relevance of the development of legal norms establishing anti-corruption rules of an obligatory nature is recognized in all areas of educational processes. Often, the educational process is considered as the main measures for the prevention of corruption, the need for staffing educational institutions with specialists capable of mass application of advanced pedagogical methods and educational preventive anti-corruption courses is emphasized [14].

Modern opportunities for transferring knowledge from a lecturer allow students to study with the incorporation of digital technologies, which make it possible to clearly demonstrate the legal framework, the structure of government agencies that implement anti-corruption policies, and also generate situations that pose corruption risks for certain behavior. These features contribute to the effective material learning [15]. Actual digital technologies are especially important in situations where students must quickly understand a certain amount of knowledge, be able to use the data obtained to solve a practical problem, and also develop an approach to a critical consciousness of the functions with corruption risks performed in a professional activity.

These digital capabilities are inherent in the presentations demonstrated during the lecture lesson, the schemes that are sent to students in electronic form are constantly available in preparation for the lessons and in the process of mastering the educational material in the classroom.

Given that the modern young generation of students is actively using the technical capabilities of smartphones, obtaining and reproducing information on the screen directly in class does not present any difficulties. [16, 17, 18].

Some part of the learning process is dedicated to the independent work of students with the material studied. The presence of lecture and reference materials in electronic form allows one to save time spent on finding information on current issues of the studied block of knowledge. At the same time, some additional questions on the topic can be provided to students for an independent study based on the canvas laid in the materials of presentations, diagrams, tables.

Digital technologies also allow the use of a test simulator that describes a specific situation with corruption risks, offering to choose the desired behavior. The result obtained when analyzing the student’s knowledge is displayed immediately after testing.

Such a test simulator allows not only to identify students' knowledge on certain issues of anti-corruption legislation but also to interest the student in finding and studying the rule of law, the composition of the offense, the legal consequences of unlawful behavior.

In the presence of a practical component, the clarification of theoretical material takes place at a much faster pace [19], especially since for students studying in technical specialties, that knowledge that has practical application is relevant [20].

The use of digital content in teaching students in the field of anti-corruption legislation also acquires special practical significance, that is: it allows one to highlight what is essential in the anti-corruption policy of the Russian Federation, to present the material in a clear language, to highlight the basic concepts, the development vector of one's perception of corruption situations associated with the personal responsibility of a specialist.

Studying using modern digital capabilities is also linked to some difficulties. Even with careful analysis and selection of information presented in electronic form, required an additional explanation of the schemes, tables, presentations to fully assimilate the material, to avoid misinterpretation of existing legal norms. The use of a test simulator for testing knowledge is more focused on those students who have studied a course of lectures and are guided in the studied theoretical material.

Of particular interest are scientific studies related to proposals to use the study of anti-corruption elements in atypical branches of knowledge of technical sciences.

5 Conclusion

Thus, digital opportunities in the study of anti-corruption norms can attract the interest of students of technical specialties in the studied legal structures, improve the quality of training for future engineers, minimize the cost of producing handouts (for example, printing and copying schemes on paper, using paper copies of test tasks), to form the correct model of existing norms in the field of anti-corruption regulation, as well as to motivate the student to independently explore some regulations related to anti-corruption regulation of the sphere of professional interest.

The use of materials for training in electronic form is a real trend in the modern educational process, while the educational field acquires a new qualitative level. Scientific research is in the stage of a constant search for problems and their solutions, some topics cause a keen scientific interest, are submitted for discussion in the form of inter-organization conferences, often with international participation.

The lecturer's tasks in these realities are the selection and systematization of the provisions of laws and regulations and the anti-corruption content that really will provide serious legal support and the basis for the work of a novice engineer will systematize the amount of information that is currently accompanying the development of legislation on anti-corruption activities and measures that determine the fight against corruption.

Using the modern capabilities of digital technology allows the lecturer to keep up with the times when modern technical means of interaction and exchange of information, reports, and data in society and the state are widely used. A modern lecturer using technical methods based on the incorporation of technical innovations in the educational process attracts the attention of the young generation using modern technical devices in all areas of their lives, which has a high-quality and competitive effect on the training of engineering personnel with knowledge in the anti-corruption field and anti-corruption skills in professional activities.

References

1. S. Bouguila, *Banks employees consciousness of the corruptions practices*, International Journal of Engineering and Advanced Technology, Vol, 8, Issue 5, May 2019, pp. 977-986(2019)
2. L.R. Khayrutdinova, *Anti-corruption education in the educational system of Russia*, St. Petersburg Educational Bulletin, No. 6-7 (10-11), pp. 4-7 (2017)
3. Y.S. Mitrofanova, A.A. Sherstobitova, O.A. Filippova, *Modeling the assessment of definition of a smart university infrastructure development level* (2019). doi: 10.1007/978-981-13-8260-4_50. Retrieved from www.scopus.com.
4. N.A. Safonova, *Anti-corruption justice as part of the professional ethics of a customs officer*, University science: from theory to practice: Proceedings of a regional scientific-practical conference, 3 parts. Part 1 / Under the general ed. of professor S.N. Gamidullaev. SPb. : Editorial and Publishing Unit of the St. Petersburg branch of the Russian Customs Academy, pp. 219-223 (2019)
5. M.G. Sergeeva, N.N. Bedenko, T.Yu. Tsibizova, M.S. Mohammad Anwar & T. G. Stanchuliak, *Organisational economic mechanism of managing the growth of higher education services quality*, Espacios, 39(21) (2018). Retrieved from www.scopus.com.
6. A. Mungiu-Pippidi, *The quest for good governance: How societies develop control of corruption*, The Quest for Good Governance: How Societies Develop Control of Corruption 1 January 2015, pp. 1-296 (2015)
7. Made Sarmini, I. Swanda, U. Nadiroh, *The importance of anti-corruption education teaching materials for the young generation*, Journal of Physics: Conference Series, 6 February 2018, **Vol. 953**, Issue 1 (2018). DOI: 10.1088/1742-6596/953/1/012167.
8. J.R. Hillman, E. Baydoun, *The future of universities in the Arab Region*, Universities in Arab Countries: An Urgent Need for Change: Underpinning the Transition to a Peaceful and Prosperous Future., 30 May 2018, pp. 1-53 (2018)
9. B.B. Tokarev, *The philosophical approach to the definition of corruption*, Sociology of power, No. 4, pp. 77-85 (2010)
10. A.N. Artamonov, *General characteristics of the anti-corruption legislation of the Russian Federation*, Bulletin of BSU, No. 3 (37), pp. 204-208 (2018)
11. T.B. Basova, *Anti-corruption in the light of administrative reform in Russia*, Criminological Journal of the Baikal State University of Economics and Law, No. 4, pp. 6-12 (2012)
12. A.A. Zykov, N.A. Mashinin, *Anti-corruption issues of modern customs legislation, The potential of socio-economic development of the Russian Federation in the new economic conditions. Materials of the II international scientific-practical conference in 2 parts*, **Vol. Part 2**, pp. 866-877.
13. P.A. Kabanov, *Anti-corruption procedural legislation of the constituent entities of the Russian Federation: formation and content*, Actual problems of economics and law, **Vol. 12**, No. 2, pp. 300-327 (2018)
14. A.V. Pavlinov, *Anti-corruption education of the younger generation as the main means of preventing corruption*, p. 156-166.
15. L.S. Arsenkina, *Illustrative method as a modern method of teaching in higher education, Eleventh All-Russian Conference of Young Scientists and Specialists (with international participation) "The Future of Russian Engineering": proceedings*, Moscow: BMSTU Publishing House, pp. 731-733 (2018)

16. D. Holloway, L. Green, S. Livingston, *From 0 to 8. Children use new technologies almost from birth - how to relate to this?*, Children in the information space, No. 17, pp. 24-33 (2014)
17. S.V. Matvieno, N.Yu. Polyakova, *Problems of youth in the information space*, Health - the basis of human potential: problems and solutions, No. 2, **Vol. 13**. pp. 492-498.
18. G.A. Ronzhin, *A teenager in the digital world*, Scientific and methodological electronic journal "Concept", No. 7 (2018). URL: [http:// e-concept.ru/2018/182016.htm](http://e-concept.ru/2018/182016.htm).
19. T.Yu. Tsibizova, V.M. Postnikov, S.B. Spiridonov, *Analysis of the impact of lecture-visualization technologies on the results of training control events*, Prospects for science and education, No. 3 (33), pp. 358–363 (2018)
20. L.S. Arsenkina, V.I. Burenina, *The use of technical training tools as a factor in the effectiveness of the development of the educational process*, International Journal of Experimental Education, No. 8, pp. 5-10 (2017)