Abstract—The research is devoted to the development of anti-corruption education by means of developing and adopting an information analysis system “Methodology and tactics of anti-corruption management for public and municipal officers” and its implementation into the activity of executive authorities. The suggested software application performs functions of an electronic teaching complex in the sphere of public officers training and retraining, allows to provide education, assessment, and performance appraisal, to analyze results obtained, to make adjustments in the personnel retraining. The information analysis system testing has been planned in the Volgograd region executive authorities that is why in the article emphasis is given to anti-corruption activities in the above-mentioned region.

Index Terms—Anti-corruption education, teaching complex, information analysis system, personnel retraining.

I. INTRODUCTION

Corruption poses a serious threat to public authorities’ performance based on law and justice, to the supremacy of law and breaks confidence of population towards the authorities, considerably slows economic development of regions [1]. This necessitates working out and assuming a complex of measures (of economic, socio-cultural, educative and legal nature), aimed at continued improving prevention. It is essential to focus on elimination of the factors and conditions that sustain corruption, to minimize the harmful effects, contributing the spread of anti-corruption ideas and views.

The Russian legislation has created the necessary conditions for effective anti-corruption work. However, to create sufficient conditions, anti-corruption work in the constituent entities of the Russian Federation must be activated.

In recent years, the issues related to creation of anti-corruption environment and this subject education to various age groups are reflected in scientific works of both Russian and foreign researchers [2], [3]. However, scientific studies are aimed either at anti-corruption educational programs creation and at their implementation at the school level, or at anti-corruption education of business-community and with civil-society institutions [4], [5]. While and integrated approach is needed both regarding personnel training and retraining, and creating anti-corruption environment of governmental and municipal authority, which is certainly based on education and instruction.

With the development of the information society, a growing number of studies on the role of information technology as a catalyst for combating corruption. The use of information technologies in the world community proves their effectiveness for the implementation of anti-corruption practices. The government of the Russian Federation should invest in the development of software of its own production, the characteristics of which make it possible to fight corruption by means specially designed for local conditions.

II. PRACTICE OF ANTI-CORRUPTION TRAINING IN RUSSIA

For several years, work is in progress to develop an anti-corruption environment of governmental and municipal authority in various regions of Russia [6].

In regional government anti-corruption bodies, great attention is paid to prevention of corruption-related offences. The main anti-corruption activities include thematic seminars, lectures, testing to ensure legal education and promote legal literacy of civil officers in matters of countering corruption.

In particular, it is common practice in Volgograd region government bodies to organize and conduct educational lecture studies on anti-corruption topics for civil officers with invited lecturers from educational establishments, whose activity is related to the Civil Service. For example, seminars on the analysis of typical common mistakes made by civil and municipal officers in the process of declaring their income and assets are in demand. The seminar offers solutions to these problems, identifies special markers that can show the presence of such errors personnel departments [7]. In the executive branch of Volgograd region government, close coordination on these issues has been instituted with representatives of Institute of Management – the branch of Federal State Budgetary Educational Institution of Higher Education (FGBOU VO) “Russian Presidential Academy of National Economy and Public Service”.

In order to introduce remote verification methods of the level of knowledge of public officers in the committee of
following the results of alignment meetings, thematic experience in the system of executive authorities regarding special aspects of law enforcement for countering corruption. Offences in the executive authorities of the region, in order to department and units for prevention of corruption and other region Governor’s administration for officers of personnel organizing and holding alignment meetings in the Volgograd organizational arrangements and training events are also Volgograd region and to civil officers on anti-corruption basis, provides advice to persons holding a public office of Volgograd region. Furthermore, the Directorate for civil service and Volgograd region Governor’s administration, on a regular basis, provides advice to persons holding a public office of Volgograd region and to civil officers on anti-corruption behavior, for prevention and resolution of conflicts of interests in the civil service, for countering corruption as well as containing information about liability for corruption offence. All persons, newly appointed to public positions and to civil services of Volgograd region, must get acknowledged against signature to the above mentioned guidelines, as well as to anti-corruption law regulations. Changes in the anti-corruption legislation are reasons for organizing and holding alignment meetings in the Volgograd region Governor’s administration for officers of personnel department and units for prevention of corruption and other offences in the executive authorities of the region, in order to study new provisions, to explain their substantive content and special aspects of law enforcement for countering corruption. In course of such activities, they also share the matured experience in the system of executive authorities regarding the implementation of anti-corruption legislation in force. Following the results of alignment meetings, thematic newsletters are formed and subsequently sent to the Heads of all executive authorities of Volgograd region to be applied in practical activities of personnel services and subdivision in order to prevent corruption and other kind of offences. In addition to the above mentioned, every year, Volgograd region executive authorities hold events, which focus on the International Anti-Corruption Day on 9 December, in which personnel services produce visual aids and guidance materials on the anti-corruption subject for distribution to civil officers. In order to counter corrupt practices effectively, Volgograd region executive authorities have launched the confidential helpline for matters related to corruption offences, which operates in the 24-hour automatic mode. Moreover, on the official Internet portal of the executive authorities there is an electronic form, which may be used to transmit information on incidences of corruption. It should be noted, that during the period from 2016 to 2018, during direct line work, as well as from the results of analysis of calls, made to the telephone helpline, there were no declared cases of anti-corruption legislation violation by civil officers of Volgograd region. According to the results of a comprehensive sociological study related to corruption practices and legal awareness evaluation among the citizenry, proper understanding of anti-corruption behavior standards on Volgograd region territory LLC “ABV” [9], in 2018, the number of citizens who considered that the level of corruption among regional officials was 50%, fell to 17.3% compared to the indexes of 2015 (26.7%). The number of citizens, who characterized Volgograd region Administration as the most corrupt power structure has also decreased more than half from 26% in 2015 to 12% in 2018. This fact illustrates the growing confidence of the citizenry towards the authorities as well as the reduction in the number of corrupt practices in this sphere. According to the authors of the article, positive dynamics is directly related to the anti-corruption activities carried in the Volgograd region executive authorities. In addition, due to the fact, that the majority of people in the region (46%) mention low moral and ethical principles of officials, as the main reason of corrupt practices, the necessity of carrying out a complex of training and awareness-rising measures should not go unnoticed. It should be done for the purposes of legal awareness and legal literacy level raising with persons in government service and civil officers for anti-corruption issues. It may therefore be concluded, that Volgograd region executive authorities follow the right vector of developing anti-corruption tactics and technologies, which show their operational effectiveness. Adoption of an information and analysis system, for the purposes of informational support using modern information technologies of anti-corruption knowledge and skills acquisition, would considerably facilitate the development of the region in this sphere.
Those measures will help to develop a preventive slant for the prevention of corruption: anti-corruption education using digital technologies in the form of practice oriented information analysis system to combat corruption. It is planned to test the systems at the premises of Volgograd region executive authorities. The system implementation into the regional anti-corruption practice will allow the anti-corruption environment to be evaluated objectively and forecast its growth.

III. DESIGN AND IMPLEMENTATION OF THE ELECTRONIC TRAINING COMPLEX

Resolve the problems, raised previously, a specialized information analysis system has been designed for the purpose of creation of a single space for civil officers education and testing, as well as for monitoring, analysis, planning and forecasting the key indicators of anti-corruption processes with further results visualization and report generation.

The information analysis system suggested in the context of the study entitled “Methodology and tactics of anti-corruption management for public and municipal officers” is multifunctional, which is proved by the presence of four components in its structure, namely information, training, testing and analytical ones.

The information subsystem provides and extensive knowledge base for the subject matter under consideration, which allows not only to get acquainted with reference content but also to make requests subject to issues of user’s interests concerning the matters of countering corruption. This subsystem also contains a complex of visual materials (infographic, video lectures, video tutorial), the purpose of which is to present the information quickly and clearly to the civil officers about proper behavior in case of any operation situation.

The training subsystem includes methods of holding anti-corruption workshops and a complex of training video course.

The training subsystem makes possible to assess public officers’ knowledge of the subject under consideration and to reveal psychological foundations for corrupt practices with public officers. The series of tests is based on the long-term experience of work in the sphere of countering corruption and has been developed taking into account not only legal aspects but psychological factors as well.

The analytic subsystem allows to prepare analysis of statistical data, which contains the results of testing, to identify weaknesses in public officers’ knowledge in the field of countering corruption and adjust their learning process in this area.

The implementation of the system will allow to reject data processing in manual mode, to preclude errors of data processing and analytical reports preparing [10], [11].

The proposed information analysis system is a particularly innovative instrument in the field of public officers’ training and retraining (as well as of legal personnel), which allows not only to carry out training and testing using modern information technologies, but also to evaluate officers’ performance and to analyze the results, to make necessary adjustments to the activity of governmental and municipal anti-corruption bodies.

IV. THE TEACHING COMPLEX STRUCTURE

Fig. 1 shows the software application architecture, which helps to automate operation of the information analysis system.

Software product under development includes the following modules:

1) Authentication module. Helps to carry out user authentication procedure by means of comparing the entered password (for a specified login) with the password stored in the database. The authentication module determines the mode of the registered user’s work with the software product.

User’s mode includes the following modules:

2) Testing module. It consists of several testing shells, which differ by the methods used to calculate the resulted of the test. All testing shells can operate in two modes: training testing and final testing.

3) Account management module. Helps the user to change the password to log in the system, to view messages from the reviewing officer and the results of tests taken.

4) Information module. It contains information about methods and tactics of countering corruption, anti-corruption guidelines and methodical recommendations, visual material (infographic, video lectures and video tutorial).

The data presented in the information module are selected from different sources, so they have different formats and presentation forms. To improve the quality of work with training materials, they were combined into a single structure.

It must be mentioned that access to information does not ensure a successful anti-corruption initiative. It is important to stimulate the use of all functions of the software with the necessary frequency. The need for retraining is determined individually for each user based on the results of testing and certification of employees.

The reviewing officer’s mode consists of the following modules:

5) Create new user module. It contains a template for creation of new users of the system. Available fields:
The implementation of the present electronic training system will help to provide comprehensive approach to meet the challenges of anti-corruption education, to monitor in stages the implementation of measures, and to give an objective assessment of their performance, to analyze the anti-corruption environment and to forecast its development. The use of this software product will help in rejecting the information processing in a manual mode, will enable error-free data processing and analytical reports preparation.

The practical significance of research consists in the possibility of using the designed information analysis system both for one-time training and testing in the area of countering corruption as well as for systematic evaluation of public officers’ performance and for analysis of anti-corruption environment, based on the system of indicators, which reflect practical implementation of anti-corruption measures and reveal psychological presuppositions of corrupt practices with public officers; and in building prognostic dependencies.

**CONFLICT OF INTEREST**

The authors declare no conflict of interest.

**AUTHOR CONTRIBUTIONS**

Olga A. Astafurova managed the research group, developed the architecture of the information and analytical system; Eyda V. Golomanchuk developed a set of methodological materials on anti-corruption education; Anna S. Borisova developed a set of visual materials on anti-corruption training; Tatyana A. Omelchenko created a prototype of information and analytical system; Olga A. Astafurova and Anna S. Borisova wrote the paper; all authors had approved the final version.

**REFERENCES**


Olya Astafurova was born in Orel city (Russia) on 29 August 1967. In 1989 she graduated from Volgograd State University, majoring mathematics. In 2007 she gained an academic degree of PhD in Engineering Science (Moscow, Russia) and in 2010 was awarded an associate professor’s degree. From 1989 to 1994 she was working as a software engineer of an experimental design office “Robots” In 1994-1996 she worked as a teaching assistant at the Department of Applied Mathematics and computation engineering of Volgograd construction-engineering institute. Since 1996 she has been working at Volgograd Institute of Management – the branch of Russian Presidential Academy of National Economy and Public Administration RANEPA holding positions of the assistant lecturer, senior teacher and senior lecturer. From 2009 to the present day she is the Head of the Information systems and mathematical modelling department of Volgograd Institute of Management – the branch of RANEPA. Research interests include: mathematical modelling, information technologies, state economic regulation, electrodynamics, UHF and EHF technology.

Dr. Astafurova was awarded the Certificate of Honor issued by Russian Federation Ministry of Education and Science for her major contribution to the sphere of education and for years of dedicated labour.

Anna S. Borisova was born in Volgograd (Russia) on 02 November 1989. In 2010 she was conferred Bachelor’s degree in business-informatics in Volgograd State University. In 2012 she acquired Master’s degree in applied mathematics in Volgograd State University. In 2014 she acquired the Degree of Candidate in Economics (Volgograd, Russia). From 2015 to 2017 she was working at Volgograd State University as a senior research fellow and senior educator. From 2017 she has been working at Volgograd Institute of Management – the branch of RANEPA in the capacity of senior lecturer.

Academic research field: information technologies, information society, electronic government, mathematical modeling of socio-economic processes. Dr. Borisova is the Prize laureate of RF President for support of talented young people, the Prize laureate of Volgograd region in science and technology.

Elya V. Golomanchuk was born in Russia on 07 March 1982 r., she is a Candidate of legal sciences, senior lecturer of the department of constitutional and administrative right in the Volgograd branch of the Federal State Budgetary Educational Institution of Higher Education (FGBOU VO RANEPA) “Russian Presidential Academy of National Economy and Public Service” In 2004 she graduated with honors from the law faculty of FGOU VO “Volgograd Academy of civil service”, in 2016 she accomplished with honors Master’s degree program majoring in “Social psychology” in VB of RANEPA. In 2006, she defended her candidate thesis for the degree of Candidate of legal sciences majoring in constitutional right; municipal right – 12.00.02. She has been working in Volgograd Branch of RANEPA from 2010 in the capacity of Senior lecturer of the department of constitutional and administrative right. Before doing that, from 1999 she was in public service at Federal Service of State Registration, Land Register and Mapping (Rosreestr) to Volgograd region. She pursues cooperation with the legislative, executive and judicial authorities of Volgograd region. She is member of Commissions for control over compliance with requirements of official conduct, formed in Volgograd regional Duma, in Volgograd region Governor’s administration, in the Federal Penitentiary service of Volgograd region. She delivers lectures and conducts tutorial workshops in governmental authorities of different levels, holds public training events for state and municipal officials in the field of anti-corruption management. Research interests include: constitutional social and economic rights of a person and a citizen; issues of administrative responsibility; administrative process; legal regulation of public service; legal aspects of anti-corruption management.

Tatiana A. Omelchenko was born in Volgograd (Russia) on 27 November 1991. In 2015 she graduated from Volgograd State University with a degree in integrated support of automated systems IT security. From 2015 to 2016 she was working at Volgograd State University as a Research fellow, IT security department. Form 2016 to the present day she has been working as an assistant lecturer of IT security department. Academic research field: information technologies, software design, automated systems IT security, IT security of mobile devices, information security audit. Graduate student Omelchenko receives RF President scholarship for students pursuing studies related to relevant priory area of Russian economy modernization and technological development.