

# Approaches to Creating an Interactive Information-Training Environment in the Organization

## Enfoques para crear un entorno interactivo de capacitación en información en las organizaciones

Andrei V. SOROKO [1](#); Dmitry S. SHEMONCHUK [2](#); Valery V. BONDALETOV [3](#); Pavel A. BAKLANOV [4](#); Marina V. SOLODOVA [5](#)

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#### ABSTRACT:

Despite the fact that the modern practice of training the government service personnel is built on the basis of the best Russian and foreign experience and contains quite systematically worked out principles of its organization, the study carried out by the authors of the article shows the ambiguity of the views of representatives of personnel services on the introduction of the mentoring system into practice. In addition, the expert survey made it possible to identify objective and subjective barriers to this process. To overcome them, the traditional forms of personnel training are being actively replaced by the technologies of informal out-of-class training, among which the technologies that are based on wide application of simulation modeling of organizational processes are of greatest interest. A new idea in understanding this phenomenon is the construction of an interactive information-training environment based on the use of visual graphics in the training practice of the organization. This article tells about the approaches, principles and methodology of modeling such environments, as well as the experience of the scientific team of the Moscow Technological University (MIREA).

#### RESUMEN:

A pesar de que la práctica moderna de formar al personal de servicio del gobierno se basa en la mejor experiencia rusa y extranjera y contiene principios de organización bastante sistemáticos, el estudio llevado a cabo por los autores del artículo muestra la ambigüedad de las opiniones de los representantes de los servicios de personal sobre la introducción del sistema de tutoría en práctica. Además, la encuesta de expertos permitió identificar barreras objetivas y subjetivas a este proceso. Para superarlos, las formas tradicionales de capacitación del personal están siendo activamente reemplazadas por las tecnologías de la capacitación informal fuera de la clase, entre las cuales las tecnologías que se basan en una amplia aplicación de modelos de simulación de procesos organizacionales son de gran interés. Una nueva idea para comprender este fenómeno es la construcción de un entorno interactivo de capacitación en información basado en el uso de gráficos visuales en la práctica de capacitación de la organización. Este artículo habla sobre los enfoques, principios y metodología de modelado de dichos entornos, así como sobre la experiencia del equipo científico de la Universidad Tecnológica de Moscú (MIREA).

## 1. Introduction

The effectiveness of government service depends on many factors. One of them is the effectiveness of the process of adaptation and training of the person newly appointed to a public office. Today, both in Russia and abroad, the most widely used and traditional form of transferring knowledge to a new employee is mentoring in its various forms. "Mentoring is a personnel technology that ensures the transmission, by means of systematic work, of knowledge, skills and mindsets from a more experienced employee to a less experienced one".

In the government bodies, mentoring is organized with the aim of assisting civil servants in their professional development, acquiring professional knowledge and skills in performing official duties, as well as adapting newly recruited staff in the team and developing discipline.

In the Russian practice of government service, mentoring in its traditional form has been represented most systematically only in the military and the law enforcement service. However, in recent years, mentoring has been given great importance in the state civil service as well. This is evidenced by the "Methodological tools for the application of mentoring in the state civil service", elaborated by the Ministry of Labor of Russia.

This document defines various forms of mentoring:

- a mentor from among the senior civil servants of the relevant structural unit;
- a mentor from among the civil servants of the corresponding structural unit, who is equal in position;
- a mentor from among the senior civil servants of the adjacent structural unit;
- a mentor from among the persons dismissed in connection with the attainment of the age limit of stay in the civil service.

When implementing mentoring activities, the state body, in accordance with the specifics of its activities, develops a set of tools for creating a comfortable working atmosphere, as well as methods for transferring to the newly appointed employee of the experience and knowledge necessary to fulfill his/her job duties.

The system of mentoring, contained in the methodical toolkit, is developed on the basis of advanced Russian and foreign experience, and contains quite systematically worked out principles of its organization and implementation in state bodies. However, despite the well-developed methodical base, the system of mentoring does not yield that effect, which was expected from its implementation. In this connection, the authors of the article undertook a study aimed at analyzing the system of mentoring in the civil service and identifying problems that hampered its effective use.

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## 2. Methods

To identify the effectiveness of the mentoring process as a form of the public official training, general scientific methods were applied in a comprehensive manner. Sociological methods (observation, survey) were used to identify the attitude of employees to the system of mentoring and training for a newly appointed position. Statistical methods were used to analyze the data obtained in order to provide reasoned justification for the conclusions on the origin and solution of the problem of adaptation and learning.

The empirical basis of the study was formed by the respondents from the representatives of the personnel services of regional authorities. The gender aspect was as follows: 72% females and 28% males. The age of respondents was 32-50 years.

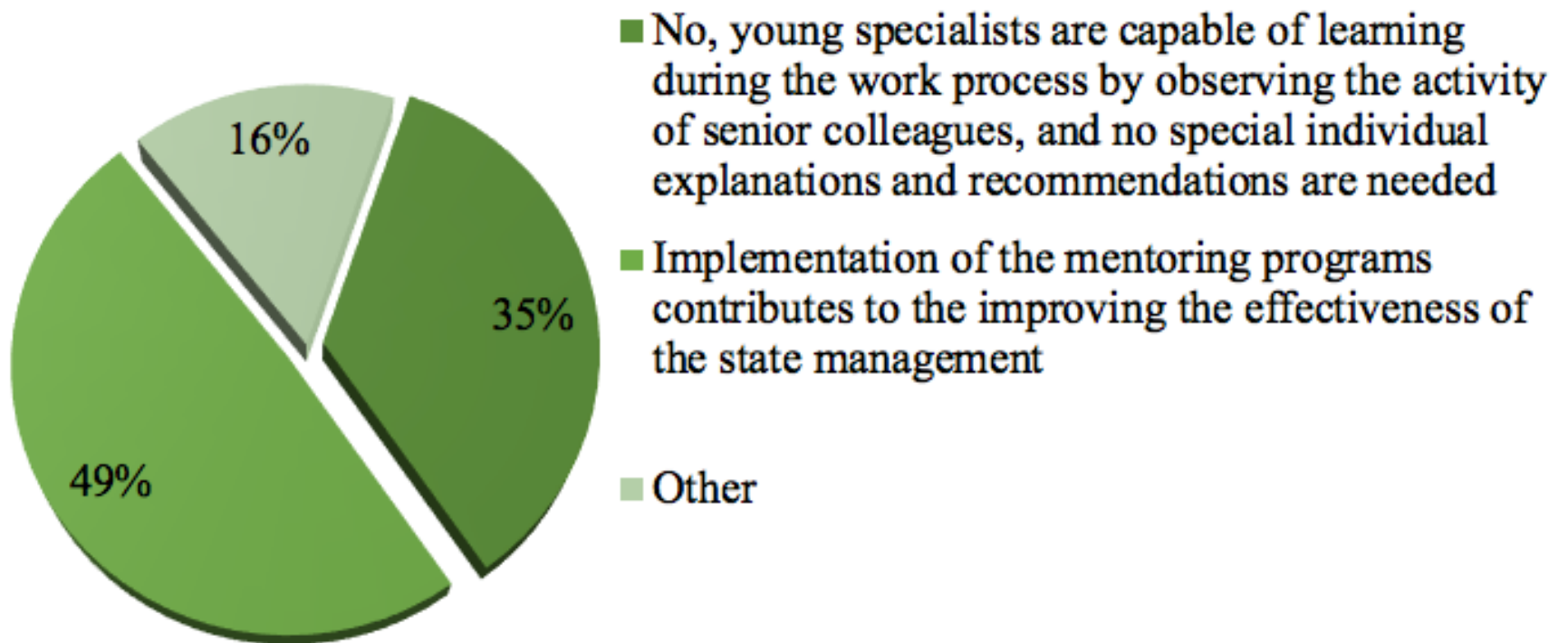
The information base of the research was federal and regional regulations, statistical data, information and analytical materials of federal and regional authorities. The obtained results

### 3. Results

The analysis of federal legislation and regional regulations shows that, up to the present time, the normative acts on mentoring do not have single legislative basis, which led to the diversity in the content of the adopted documents. This form of adaptation and training of employees has been developed and implemented most systematically by law enforcement and law ministries at the federal level, for example: the Ministry of Defense, the Ministry of Civil Defense, Emergencies and Elimination of Consequences of Natural Disasters, the Ministry of Justice of the Russian Federation and the Federal Bailiff Service. The analysis of the regional normative acts, defining the procedure for the implementation of mentoring in the civil service, allows us to conclude that, on the whole, they have been developed and are in line with the "Methodological recommendations on the use of mentoring in the state civil service". However, despite the elaboration of the methodological tools, the attitude of representatives of the personnel service of regional authorities to the need for introducing mentoring programs in the public service is not entirely unambivalent (see Figure 1).

**Figure 1**

Attitude of the representatives of personnel services of regional authorities to the implementation of mentoring programs in the civil service0  
(% of the total number of respondents)

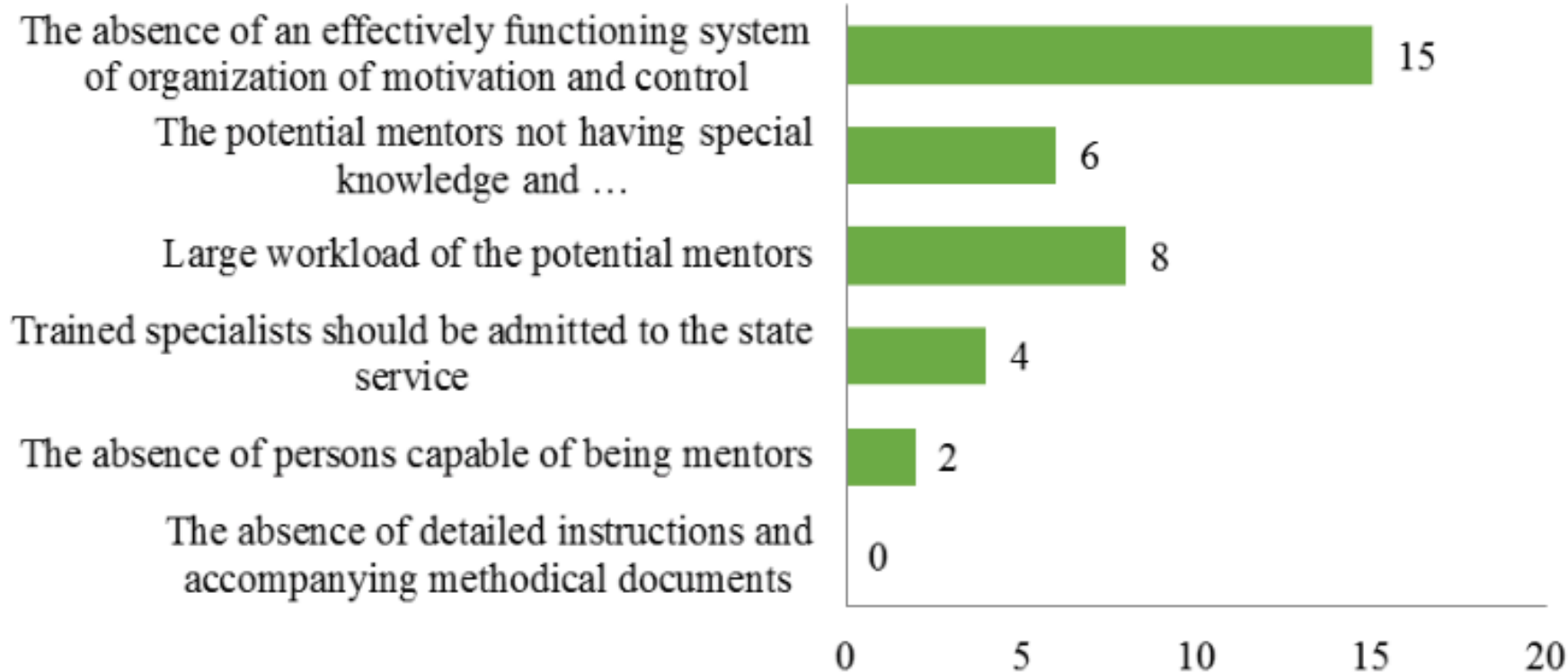


1. 49% of the respondents support the introduction of a system of mentoring, of which more than half (51%) of the respondents believe that this will, first of all, improve the level of theoretical knowledge and practical skills of mentors, and for 59% it is also an opportunity to professionally prepare and psychologically adapt the beginners to a new job. Answering the question "What personal benefits can be derived from this work?", 31% of the respondents said that this would help to form their team of highly qualified employees. 32% of the officials expect to increase practical managerial skills in their work activity, another 19%, expect to strengthen theoretical knowledge. Interestingly, a number of respondents see in their own mentoring the opportunity to raise personal prestige (12%) and self-esteem (6%).

2. More than a third of the interviewed representatives of personnel services (35%) believe that young professionals are able to learn in the process of work, observing the actions of their senior colleagues, and do not need special individual explanations and recommendations. In addition, the inexpediency of introducing a system of mentoring in state bodies is also explained by the representatives of the personnel services of regional authorities by the following reasons (see Figure 2)

**Figure 2**

The reasons for the inexpediency of introducing a system of mentoring in the public service  
(% of the number of respondents who voted against the introduction of mentoring)



As can be seen from Figure 2, the most significant reasons are the absence of system for organizing motivation and control (15%), the mentors not having special knowledge (6%) and a high workload of employees (8%). In addition, these same reasons are the main factors for the low effectiveness of the mentoring system:

- 56% of the respondents noted that there were no training programs for mentors in their offices, 40% of respondents stated that such programs had been developed, training seminars, trainings, etc. were carried out.
- 72% of the respondents indicated that, in their public office, there was a system of official assessment and motivation of the mentor, while 54% of them noted that the evaluation and motivation system was fragmentary and subjective.
- an important factor is the absence of potential mentors, and this factor, to a greater extent, is associated with the psychological characteristics of employees in the departments. For example, the studies conducted by Zlobina (2016) on the psychological characteristics of mentors show that 36% of mentors demonstrate a low level of communicative abilities; this is expressed in the absence of aspiration to communication. Many mentors, due to high workload and time deficit, prefer to perform their work by themselves, have difficulties in the training process; it is difficult for them to give a speech in front of the audience, they have no skills to transfer experience. 34% of mentors have low level of organizational skills, they avoid making decisions, do not have the skills of organizing and planning the work of assigned partners. Among 27% of mentors, indicators of a low level of propensity to risk are recorded, which does not contribute to ensuring the effectiveness of mentoring activity. A mentor with a low risk propensity is anxious about the possible danger associated with professional activities and is unable to transfer some of responsibility to an inexperienced employee.

3. Despite the potential benefits that effective mentoring brings, 16% of the respondents insist on the need to find new forms and methods that contribute to the effectiveness of the process of adaptation and training of new employees in the state government bodies. In this regard, special attention should be paid to the experience of representatives of both domestic and foreign business structures. For example, the L'Oreal company uses the learning game "Hair-be 12", which develops the key skills of the hair salon staff. In the MITRE Corporation, applicants go through a 3D-game "Honorary Work". In the Renault company, the game teaches the standards of service in a car workshop. The Hilton hotel chain uses a virtual simulator to service guests. British Gas uses a training course on effective communications and fault diagnosis for service engineers. The experience of St. Petersburg is also interesting. In the year 2016, the Personnel Council under the Governor of St. Petersburg, uniting the heads of state bodies of the subject of the Russian Federation, decided to start implementing the project "Electronic Mentoring". Electronic mentoring is the application of advanced e-learning technologies in mentoring. The created package of

electronic courses allows for the first time the accepted civil servant to undergo accelerated adaptation in a government agency and significantly increase the level of his/her professional knowledge and skills. It helps the mentor and the personnel service to carry out an objective control over the mastering of necessary information by the civil servant, and it helps the regional body for managing civil service to carry out interdepartmental control over all the processes of mentoring.

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## 4. Discussion

In the conditions of increasing information workload and the progressive decline in the motivation of state employees for mentoring, the task of creating special spaces for intellectual self-development and creativity of employees acquires particular urgency. Today, the system of in-house training experiences a period of serious renewal. Corporate universities and the traditional forms of education lose their significance.

A new integrative form of the organization of the employees' activity is required: "to learn through actions". This becomes possible with the active introduction of educational information technologies and various innovations into the system of in-house training.

In a single organizational space, the unification of the educational process, game forms of training and modern technologies takes place. This should be the starting point for working on a whole direction: creating an interactive learning environment. The use of information and communication technologies is a powerful tool for developing the motivation of the in-house educational process, transferring the center of gravity from the verbal methods of education rigidly fixed in time to the methods of search and creative activity of the trainees. In connection with this, the roles of the mentor and the leader change. To a greater extent, they become coworkers and assistants in the educational process (Golovanova and Soroko 2017; Zhukov 2015; Pozdnyakova 2010; Ryabova 2017). The use of computer technologies helps:

- to motivate the trainees to work actively;
- to make the educational process more psychologically comfortable, convenient in terms of time and pace, intense and visual;
- to activate the cognitive interest through the game;
- to activate the thought processes (analysis, synthesis, etc.).

Proceeding from the above, we can state that information technologies become the most important means of forming an intraorganizational interactive educational environment.

In accordance with this, as an initiative, the scientific team of the Moscow Technological University (MIREA), under the leadership of Doctor of Economic Sciences Soroko A.V., is creating an interactive environment for the development of professional competence of public servants. Analyzing the market of imitation games, we came to the conclusion that none of the games presented in the Russian market is aimed at improving the administrative literacy of personnel. Of course, there are objective reasons, connected with the lack of a unified regulation of administrative activities in the organizations of the business sector. Therefore, our choice was the state service. In this sector, business games can be used to simulate the following processes: personnel management; interagency coordination of documents; management of budget planning; management of budget execution, etc.

The novelty of the work is due to the original application of the system-activity approach to the design of motivating interactive environment for the development of professional competence of employees.

The motivation of employees to cognition is achieved through their inclusion into gaming simulation practices, as well as into various types of meaningful activities.

The interactivity of the environment is provided by the use of interactive elements, game programs and electronic educational content.

The methodological basis of the environment is formed on the basis of the following scientific concepts, the results of preliminary research by authors, advanced domestic and international practices:



- the system-activity approach (Asmolov 2010), based on the theoretical principles of the concept of Vygotsky, Leontiev, Elkonin, Galperin (Leontiev 2004; Elkonin 1999; Galperin 1985);
- the principles of mixed (blended learning) and adaptive learning;
- Krasovsky's method of sociological modeling in the visual imitation of space-time relations (Krasovsky 1989).

The value of the authors' approach lies in the possibility of implementing the activity approach, the integration of various activities and cognitive activity of the trainees.

The development and implementation of the environment is carried out taking into account the following basic principles:

- interest – the content and form of presenting the material, techniques, staff behavior, etc. should motivate students to cognitive activity,
- innovation – the very essence of the environment is innovative, which should be supported by the methods of working with the trainees, the content and quality of the service provided,
- accessibility and democracy – the possibility and comfortable being in the environment, the use of its educational and developmental components,
- quality – all elements of the environment must be created in a quality manner, equipped with real scenarios of professional activity, provided with the necessary information materials and aids,
- scientific character – all elements should be aimed at developing specific competencies, knowledge or skills of students, to obtain a concrete result.

The educational process is based on the principles of "learning through the game" (Edutainment) and visual imitation. The environment provides the variability and continuity of educational programs in accordance with the work-related specificities of the trainees.

Mastering the programs of basic e-courses is recorded in the individual mentoring program. Each module of electronic courses contains a set of cases, scenarios, business situations, simulators and final variable tests.

For each position in the organization, a chart of professional competence is formed, which includes three profiles:

- the profile of professional knowledge (What should an employee know about the given position?);
- the profile of professional skills (What should one be able to do and which skills possess?);
- the profile of personal qualities (What personal qualities should the employee holding the given position have?).

During the performance review of personnel, employees are tested for each of the profiles, and the level of compliance of employees with the chart of professional competence for each of the profiles is determined. Then the visual-graphic estimates for each profile are summarized, averaged and transferred to the visual model.

In addition, a database of educational-methodical materials is developed in the organization, the development of which will increase the level of professional competence for each of the profiles.

In the organizational training, it is very important to visualize the situations "before" and "after" the application of short-term training methods (Bondaletov 2015), especially when the object of training is a newly admitted employee or employee applying for promotion.

First, the primary measurement of the employee's professional competencies is performed for each of the profiles; then, the real profile of the employee's competences is compared with the profile of the professional competencies of the position.

As mentioned earlier, one of the principles of designing a testing system is availability, i.e. the testing system is freely available to any employee. This principle allows the employee, not waiting for the qualification period, to independently check their level of professional competence. After testing, the system, depending on the degree of conformance of the

employee profile to the profile of the position, automatically puts the employee to the reserve for the required position, or appoints the training program.

It is clear from the generated chart, in which direction the concrete employee should develop. For the profile of professional knowledge, the organization develops a knowledge base: a course of electronic lectures, video materials, webinars, etc.

For the profile of professional skills, a base of educational cases, scenarios, business or simulation games is developed. The profile of personal qualities is presented by a set of trainings, the development of which promotes the acquisition of necessary business qualities.

In general, the development of the profile and the competency chart provides an opportunity to assess the potential of the employee to promote him/her and reduce the risk of nomination (admission) of incompetent employees; to reduce training costs; to support employees' sense of justice and increase labor motivation. At the same time, as it was already noted, this tool can also be used by employees for self-evaluation. And, finally, the profile containing parameters for assessing the performance of the employee allows one to correctly set tasks for a newcomer from the very beginning and prepare him/her for work after a trial period, immediately adapting the employee to the system of assessing the work of personnel admitted to the organization.

Visually, the manifestation of the training function of the interactive environment can be considered on the example of Krasovsky's gaming practices (Krasovsky 1989).

As an example, we present the results of modeling the "I"-states "Basic ensemble of motivators" (see Figure 3).

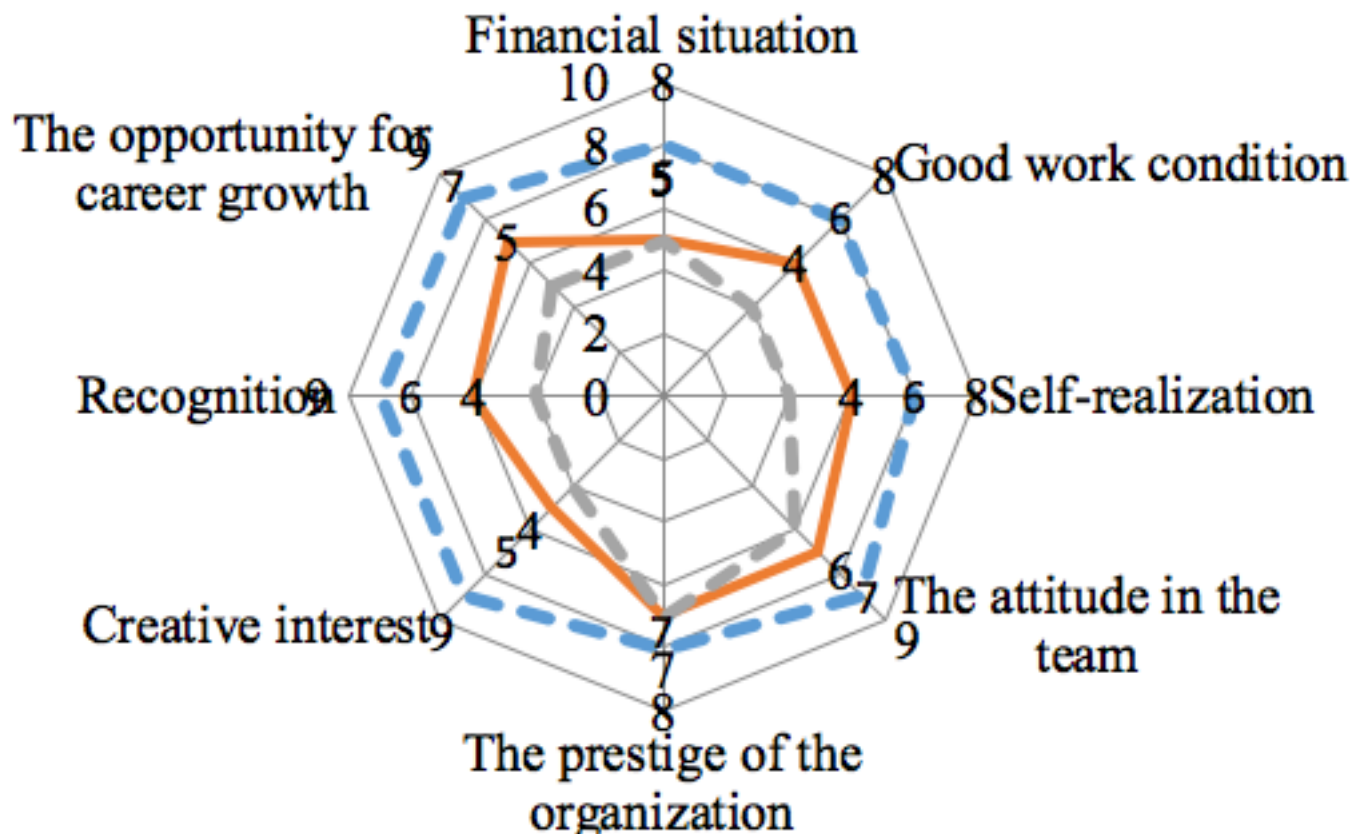
The desired experience of "I" – a state in overcoming one's own dissatisfaction

The real experience of the state as one's own dissatisfaction

The "I"-state during the initial time of working in the organization

**Figure 3**

Conditional model of 3D modeling and visual-graphic positioning of "I"-states without preliminary survey



With the help of this model, we can trace the dynamics of the "I"-state of the individual in the conditions of the organization, as well as the conflict personal meaning experienced by the employee in the discrepancies between his/her real and the desired "I"-states.

The graph shows the results of diagnosing the "I"-state of an employee in a business organization. It is easy to see that at present the "I"-state, determined by the evaluation of

the above parameters, is much better than at the time of coming to work for the organization. However, there is a gap between the desired and the real state in all criteria. The greatest gap is observed in the criterion of "creative interest". This shows that the given organization satisfies this need to the least degree, which in turn is expressed quite strongly. If the mentor applies some visual-graphic models at the initial stage of getting the introductory information, then they help him/her to orient him/herself. This gives him/her the possibility to quickly get in touch with an employee of the organization, helping to organize an impromptu interview with him/her. In this visual graphics, the mentor also gets a triple vision of the situation, but especially, the desired situation of change in the future. In this way, there appears a method of visualized training, which is based on the concept of **visual-graphic personal modeling**.

In the system of intraorganizational training, it is important to recognize two basic socio-cultural ideologemes:

- a) **the initial one**, which strategically formats educational search in three time positions;
- b) **the basic one**, which fixes the criteria for diagnosing the corporate culture in two temporary positions.

These ideologemes are a prerequisite for successful learning in organizations in its initial stage and in its final stage.

Application of **visual-graphic personal modeling** allows organizing:

- individualized training and group forms of work,
  - objective and operative control of educational results,
  - distant forms of training,
  - various types of interactive interaction between learners and mentors.
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## 5. Conclusion

1. Considering mentoring as an element of the work of a particular person, it is necessary to realize that it has its benefits and drawbacks, recognizing which, we can increase the effect of mentoring. As the conducted study shows, in the process of intraorganizational training, a great role is played by the personality of the mentor: not every worker, a professional in his/her field, can become a mentor. A mentor should have a number of characteristics: first of all, the desire and opportunity to share one's knowledge, responsibility, responsiveness, purposefulness, sense of tact, self-discipline, etc. There are not many such people even in large companies; thus, in order that the mentoring system constantly and efficiently work and develop, strive to achieve the organization's goals, and all knowledge accumulated in the company be transformed and transferred, it is necessary to create an educational environment in the organization.

2. In the implementation of mentoring, to build training and development programs for employees requires a systematic approach, which takes into account the external conditions of the organizational environment, as well as the internal processes of the employee. The achievement of an effective result from the introduction of such programs is possible only after a detailed analysis of all the above factors. Having implemented a system of training based on the use of interactive gaming technologies, the organization thereby motivates the employee for constant development. It is necessary to periodically check the conformance of the developed skills to the requirements of the organizational environment. Such diagnostics is carried out both before the certification of the company's personnel, and as a self-assessment. To ensure the motivation of the organization's personnel, it is necessary to program a clear systemic approach to training.

3. The creation of a motivating interactive environment for the development of professional competence of the personnel allows the trainees to implement their own projects not only within personal interests, but also to make them the basis for developing their own professional skills.

In fact, we are talking about creating simulators where employees can train, acquire the



necessary skills in solving problem situations, make mistakes, and thereby learn to overcome them in real life, develop their abilities and acquire new skills.

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1. Moscow Technological University (MIREA). 78 Vernadsky Avenue, Moscow, 119454 Russia. E-mail: [bondaletovvv@mail.ru](mailto:bondaletovvv@mail.ru)

2. Moscow Technological University (MIREA). 78 Vernadsky Avenue, Moscow, 119454 Rus

3. Moscow Technological University (MIREA). 78 Vernadsky Avenue, Moscow, 119454 Russia. Russian State Social University. Wilhelm Pieck Street, 4, bldg. 1, Moscow, 129226 Russia

4. Moscow Technological University (MIREA). 78 Vernadsky Avenue, Moscow, 119454 Russia. Russian State Social University. Wilhelm Pieck Street, 4, bldg. 1, Moscow, 129226 Russia

5. Moscow Technological University (MIREA). 78 Vernadsky Avenue, Moscow, 119454 Russia

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