The use of new training forms and methods in the context of digitalization

L S Vereschagina¹, L A Olkhova¹, O N Kozyreva¹, E A Padalka¹ and E G Nelyubina²

¹ Saratov Socio-Economic Institute (branch) of Plekhanov Russian University of Economics, 89, Radishcheva street, Saratov, 410003, Russia
² Samara State University of Social Sciences and Education, 26, Antonova-Ovseenko str., Samara, 443009, Russia

E-mail: miladosks@gmail.com

Abstract. The paper substantiates that the problem of implementation of modern forms and methods of teaching, including distance learning, remains insufficiently studied at the moment, taking into account the impact of factors of computerization and digitalization of socio-economic relations and the characteristics of national experience. The article defines the essence of personnel development, considers the forms and methods of personnel training, classified by stages, roles of the teacher, the nature of cognitive activity, types, place, and degree of innovation. The purpose of the study is, on the basis of a comparative analysis and systematization of forms and methods of teaching, determining the essence and content of distance learning, to identify the advantages and limitations in the implementation of methods of remote learning in the context of digitalization. The stages of distance learning development, the essence of distance learning as a set of specific forms, means, methods through which the content of training is carried out, a set of cognitive procedures that determine the operational part and structure of students’ activities, opportunities, advantages and limitations, forms of distance learning - chats, online classes, internet conferences and webinars, telepresence.

1. Introduction

With all the variety of new forms and methods of training, it is impossible to state categorically that all of them are used as efficiently as possible at each stage of the development process and are available to every employee. A distance learning system using digital technologies and an online environment enables to form the required competencies within a short period of time and on-the-job, that is remotely. The problem of implementing innovative forms and methods, distance learning systems in the context of the need to comply with the self-isolation regime in order to prevent the spread of coronavirus infection is becoming especially urgent.

The issues of the realization of new forms and methods of teaching were highlighted in Russian and foreign studies, for instance by O.S. Vikhansky [1], L. V. Kartashova [2], A. Ya. Kibanov [3], Yu. G. Odegov [4], as well as P. Drucker [5], D. Hurley [6], D. Kirkpatrick [7], P. Senge [8], etc.

It should be noted that the problem of the implementation of modern forms and methods of teaching, including distance learning, remains insufficiently studied at the moment, taking into account the impact of factors of computerization and digitalization of socio-economic relations and the characteristics of national experience. The purpose of the work is, on the basis of a comparative analysis and
systematization of forms and methods of teaching, determining the essence and content of distance learning, to identify the advantages and limitations in the implementation of methods of remote learning in the context of digitalization.

2. Results and discussion
Development implies the formation of a qualitatively new level and/or the new characteristics acquired by an economic entity, achieved through targeted changes in the discipline, means of labor, human resources, and other production factors.

Personnel development can be viewed through organizational and economic measures in the personnel management system for training at the stage of adaptation, planned training, retraining, advanced training in the process of use, training in the process of managing professional and career development of employees.

Table 1 systematizes the forms, means, and methods of personnel development.

| Personnel development stages: | adaptation training | professional growth | personnel reserve management |
|-------------------------------|--------------------|---------------------|----------------------------|
| Classification of the forms and methods of training implemented at each stage of personnel development | | | |
| The form of training is an external manifestation of the learning process: | | | |
| By the number of students: collective, group, individual | | | |
| By the place of study: classroom, extracurricular | | | |
| By training mode: full-time, part-time, part-time distance | | | |
| Form of organization of lecture, practical lesson, laboratory work, research and development work, cognitive activity (form of independent work, consultation, excursion, conference, round-table talk classes): | | | |
| Lecture: introductory lecture, overview-review lecture, overview lecture, problem lecture, binary lecture, lecture with mistakes, lecture-excursion, lecture-press-conference, lecture-visualization, lecture using cases, lecture using brainstorming | | | |
| Practical lesson: laboratory work, round-table talk, press-conference, excursion, professional simulation | | | |
| Knowledge control form: workshop, review work, test, credit, exam, course papers and thesis defense | | | |
| Training tools - objects used in the educational process as carriers of educational information and tools for the activities of teachers and students to achieve goals: | | | |
| Traditional: teaching materials, equipment of classrooms, visual aids, diagrams, tables, problem books, collections of tasks and laboratory work | | | |
| Innovative: computers, projectors, interactive whiteboards, flip charts, AIS, training programs | | | |
| Teaching methods are ways of interaction between students and teachers to achieve the goals and objectives of the educational program. Within the framework of the above forms, the methods and content of training are implemented | | | |
| The science "didactics" uses the following classification of methods used in the learning process: | | | |
| Learning phase: preparation for mastering the material, study, clarification, deepening, mastering skills and abilities, control | | | |
| The role of the teacher: explanation, self-study | | | |
| The logical way of knowing: induction, deduction, analogy, analysis and synthesis | | | |
| The stage of managing the cognition process: organizing learning, motivating, testing and evaluating | | | |
| The nature of cognitive activity: explanatory and illustrative, reproductive, problematic, partly research, research activities | | | |
| In the theory of personnel management, there is the following classification of personnel training methods: | | | |
| By types: advanced training, training, retraining | | | |
| By place: In the organisation: | | | |

Table 1. Classification of forms, means and methods of personnel development.
- on-the-job (coaching, induction, mentoring, coaching, tutoring, copying, delegation, rotation, increasing tasks, brainstorming, budding, shadowing, secondment, internships)
- off-the-job (lecture, webinar, round table talk, training, conference, professional simulation, etc.)

Outside the organization
Self-study

By the degree of innovation:

Traditional (lecture, discussion of reports, workshop, survey)
active, incl. discussion, professional simulation, training rating (training, professional simulation, training seminar, behavioral modeling, brainstorming, case method, in-training)
Interactive (brainstorming, puzzles, comparative diagrams, goal tree, project method, tutorials, online tests, round table talk, aquarium (role-play games, behind the glass role-play game), BarCamp or anti-conference, PRES-formula)

During the COVID-19 epidemic, in accordance with Order No. 397 of the Ministry of Science and Higher Education of the Russian Federation dated March 14, 2020 “On educational activities in organizations implementing higher education programs and relevant additional professional programs, in the context of preventing the spread of the new coronavirus infection in the territory of the Russian Federation” the educational process under all educational programs shall be implemented via distance learning technologies. All classes were conducted remotely.

Distance learning (DL) means distance communication between teachers and learners with all elements of educational activities (goal-orientation, forms, means, methods of education and training), carried out using special web technologies and electronic interactive tools.

Distance learning as a technology is defined as a set of specific forms, means, methods by which the training content is implemented, a set of cognitive procedures that determine the operational part and structure of students' activities. The further process of computerization and digitalization of pedagogical activity led to the realization that technology, forms, methods of distance learning can be used in all forms of the educational process.

In European countries, with the advent of regular and affordable postal services at the end of the 18th century, "correspondence training" became popular - students received educational materials in letters, sent completed assignments by mail, passed an exam to a proxy, or sent their graduation thesis to a supervisor by mail. In Russia, this method of teaching emerged at the end of the 19th century.

A characteristic feature of the first half of the 20th century was the rapid development of technology, the emergence of radio, telegraph, telephone, but there are no reliable facts about their use in teaching. At the same time, the era of correspondence education continued, many higher educational institutions in various countries of the world still use it. The advent of television has changed the way distance learning is implemented.

Television was a breakthrough in the development of distance learning, the audience of students grew many hundreds of times. Educational programs were broadcast on radio and television in many countries around the world, but a significant drawback was the limitation of feedback from students.

In 1969, the United Kingdom established the world's first distance learning university, the Open University, where classroom lessons were rare and the cost of education was affordable. Distance learning programs have also been implemented by University of South Africa since 1946, University of Hagen since 1974, National Institute of Technology in the USA since 1984, INTEC College in Cape Town, National Distance Education University in Spain, The Open University Business School etc.

In the 80s of the 20th century, computerization and automation acted as a boost for the development of distance learning. In 1988, a joint school e-mail project was implemented with the United States. In the 90s of the 20th century, International Association "Znanie" and the Modern University for the Humanities were the first to use satellite distance learning technologies.
Distance learning courses are officially regulated by Order No. 1050 of the Ministry of Education of Russia dated May 30, 1997 "On conducting an experiment in the field of distance education", which initiated experiments in distance learning. In the 21st century, computerization and virtualization have popularized and accelerated the process of distance learning, the possibilities of the Internet are larger than radio and television. Regardless of where teachers and students are located, there is an opportunity to communicate and receive feedback. "High-speed Internet" enables to conduct online seminars (webinars) and online conferences for educational purposes.

In terms of the implementation of distance learning, the first school in the period of economic reform was the "Optima" school, which provided students in grades 1-12 with the opportunity to study remotely with an individual schedule and speed of mastering disciplines. Graduates of this school receive state education documents and can get higher education at any university.

In March 2020, due to the COVID-19 pandemic, the Ministry of Science and Higher Education of the Russian Federation developed guidelines for organizing distance learning. The President of Russia signed the Federal Law No. 164-FZ dated June 8, 2020 "Concerning the Introduction of Amendments to Articles 71-1 and 108 of the Federal Law "On Education in the Russian Federation", which regulates the procedure for distance learning in case of an emergency situation.

The system of modern distance education includes such elements as means of transmitting information (mail, television, radio, Internet, mobile communications), methods of information exchange depending on the technical environment.

Distance learning opportunities are reducing the costs for training; reducing training time; flexible learning modes (time-management, choice of where to study); training a significant number of employees at the same time; improving the quality of education with the help of modern electronic tools, expanding learning opportunities using not only computers, but also tablets and smartphones; creating a unified virtual educational environment (moodle); an alternative to traditional forms of education in emergency situations.

Distance learning can be carried out online and offline. There are several important advantages of studying via the Internet: flexibility which means that learners can study at convenient times and anywhere; no space constraints implying the fact that learning process is not limited by place of residence; cost-effectiveness which means that training costs are significantly reduced.

On the other hand, the requirements for the teacher's competencies are increasing. The emphasis is on growing digital and technological skills. For example, teachers need to know the specifics of online whiteboards (Miro, Murel), have the skills to organize video conferencing (Zoom, Skype) and conduct online surveys using Servio, Mentimetter services. The results of a study conducted by the Russian Ministry of Education and Science in cooperation with the Institute for Social Analysis and Forecasting of the Russian Presidential Academy of National Economy and Public Administration showed that the teachers are organizationally ready to switch to distance learning formats, but psychologically they do not accept such a sharp break with traditional full-time education. A skeptical attitude to what is happening is due to both the characteristics of the disciplines taught (for example, technical and experimental), and conservative views on the nature of learning. The study involved almost 34 thousand teachers, or about 15% of the entire general population of the teaching staff of universities in the Russian Federation.

As the current situation has shown, for the majority of teachers, transitioning to distance learning was associated with difficulties in mastering new work skills. Forms of distance learning are: chats - training using chat technologies. The chat course is synced, which means that all participants can access the chat at the same time. Online classes are distance lectures, workshops, conferences, seminars, business simulation games, laboratory work and other forms of training courses conducted using the Internet, including consultations, exams (moodle). For online courses, a special educational online environment is used, through which asynchronous interaction between teachers and learners is carried out. Online conferences are usually held on the basis of mailing lists using instant messengers, e-mail, social networks. Telepresence can be carried out using special robotic programs, for example, R.Bot 100.
In a pandemic situation, when teachers and students unexpectedly find themselves in the conditions of distance education, special attention should be paid to the state of psychological and physical health due to the lack of social communications [9, 10].

3. Conclusions

The article systematizes the main forms, means and methods of teaching, identifies opportunities and limitations for the use of distance learning. It has been substantiated that the transiting to a remote training system using digital technologies and the Internet has become especially relevant since the beginning of the pandemic and is necessary to prevent the spread of coronavirus infection.

For distance learning, learners do not even need computers all the time. It is enough to install a special application on your smartphone, enter the access code and they can start training. The advantages of online training are flexibility, cost-effectiveness, reproducibility of digital recordings of webinars and online conferences, modernization and updating of lecture courses and workshops. Limitations are associated with different levels of technical support for learners, a decrease in the level of interactivity of classes. Mind, Skype, Zoom software tools allow one to maintain feedback with learners and conduct workshops, defense of term papers, practice reports, consultations, exams, defense of final thesis.

The use of modern forms and methods of teaching, the development of a distance learning system using digital technologies will increase the efficiency of the personnel management process, optimize costs, and ensure the competitiveness of national companies and educational organizations.

The practical significance of the study would increase significantly if the results of an empirical study of distance learning systems were generalized, and their effectiveness was assessed. These limitations and problems may be the subject of further research.

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