DIGITAL RESOURCES. ELECTRONIC LIBRARIES

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Student's personal account as an individual electronic library at Russian State Agrarian University – Moscow Timiryazev Agricultural Academy

Abstract: The article is devoted to the currently topical topic of using the electronic library system by means of creating a student's personal account – a personal electronic library. The problem of using information technologies to provide students with high-quality educational information is currently coming to the fore due to the emergence of a large flow of information and the lack of criteria for its selection among students. The purpose of the publication is to acquaint readers with the results of work on the development of a personal electronic library of a university student, to provide students with educational materials in full, as well as with the results of a study of the effectiveness of using a personal account in the process of teaching students. To achieve this goal, the authors carried out experimental work, consisting of three modules: basic, theoretical and intellectual, as well as experimental work to establish the influence of the developed personal electronic library on the level of educational motivation of students, as well as its relationship with academic performance. The results of the study show that the use of a personal electronic library increases the educational motivation of students to study the subject, and also positively affects the academic performance of students, improving the quality of education. The practical significance of

the work lies in the creation of a student's personal electronic library based on the electronic library system of the RSAU-Moscow Agricultural Academy named after K. A. Timiryazeva, which can be used in teaching university students.

Keywords: information technology, personal account, educational motivation, electronic information and educational environment, electronic library system.

Information technology has affected almost all spheres of human life, including education. The issue of the availability of educational information plays a leading role in the formation of a digital educational environment. According to GOST R 57723-2017 “Information and communication technologies in education. Electronic library systems" to provide the teacher and students with access to electronic libraries and publications for solving problems related to scientific and educational activities, it is necessary to use modern information technologies. For the use of electronic library systems in the educational process, as well as for the individualization of use, it is necessary to provide access to educational information by means of creating a personal user account.

The purpose of our research was to create a student's personal account (personal electronic library) based on the electronic library system of the Russian State Agrarian University – Moscow Timiryazev Agricultural Academy, as well as experimental and experimental substantiation of the effectiveness of using this office in teaching students.

Electronic libraries (DL) are forms of complex distributed information systems that provide new opportunities for working with heterogeneous information, and are considered as the basis for creating a global distributed repository of knowledge. There is currently no generally accepted definition of an electronic library. So, according to Ya. L. Schraiberg's definition, an electronic library is local or distributed electronic resources, united by a common ideology of structuring and access [**8**]. In the works of T. V. Ershova and Yu. E. Khokhlov, the concept of an electronic library means a distributed information system that allows you to reliably store and effectively use heterogeneous collections of electronic documents (text, graphics, audio, video, etc.), available in a user-friendly form through global data networks [**4**]. William Arms, a well-known American scientist in the field of electronic information and the author of the first translated

book on electronic libraries published in Russia, gives the following definition: "An electronic library is a managed collection of information stored in digital formats and available over the network in conjunction with appropriate services" [**1**]. In our country, the concept of an electronic library is currently associated with the concept of an electronic library system and an electronic information and educational environment. In accordance with the educational standard, each student during the entire period of study must be provided with individual unlimited access to one or several electronic library systems (EBS) and to the electronic information and educational environment (EIOS) of the organization. The electronic library system (electronic library) and the electronic information and educational environment should provide the student with the ability to access from any point where there is access to the Internet, and that meets the technical requirements of the organization, both on the territory of the organization and outside it.

The electronic information and educational environment of the organization must provide:

access to curricula, work programs of disciplines (modules), practices, and publications of electronic library systems and electronic educational resources specified in work programs;

fixing the course of the educational process, the results of intermediate certification and the results of mastering the main educational program;

conducting all types of classes, procedures for assessing learning outcomes, the implementation of which is provided with the use of e-learning, distance educational technologies;

formation of the student's electronic portfolio, including the preservation of the student's work, reviews and assessments for these works by any participants in the educational process;

interaction between participants in the educational process, including synchronous and (or) asynchronous interaction through the Internet.

The functioning of the electronic information and educational environment is provided by the appropriate means of information and communication technologies and the qualifications of workers who use and maintain it [**11**]. The functioning of the electronic information and educational environment must comply with the legislation of the Russian Federation.

At the present stage of education development, the creation of a unified educational information environment is a fundamental element of both each educational institution individually and the entire system of Russian education. This is due to the constant improvement of the level of knowledge of information technology (IT). The basis of an innovative approach in training specialists of the highest category is the use of modern educational technologies, therefore information culture becomes an integral part of every student, the most important condition for his self-realization [**10**]. In accordance with the modern educational paradigm, when the independent work of students makes up a significant proportion of the complexity of the discipline of the modern FSES HE, the educational information environment, in particular, of the student of the Faculty of Humanities and Pedagogy should be operatively accessible, legitimate, containing the entire spectrum of the pedagogical trajectory [**9**]. The penetration of new information technologies and information resources into pedagogical education requires considering the didactic process as scientific and informational, in which the student not only masters the skills of obtaining information, but also develops thinking and creative activity. Today, information and communication technologies used by a student are usually collected on the university website in the form of accessible digital information: an electronic library system (WRC, work programs of disciplines (modules), etc.), curriculum, schedule, library website (digital fund, external EBS), personal account. As a rule, a student's personal account has the following structure [**13**]:

portfolio is a resource that reflects the growth of educational or professional achievements: resume, results of educational, scientific, creative, sports, social and other activities, publications, speeches at scientific conferences;

"Internet cabinet" – remote communication with teachers and classmates;

We propose to introduce a new concept into the educational process – personal electronic library (LEB). The experiment was carried out at the Department of Pedagogy and Psychology of the FSBEI HE Russian State Agrarian University – Moscow Timiryazev Agricultural Academy. The actualization of this issue was associated with insufficient efficiency of information support of the modern educational process, with the need to

expand the range of information resources, enhance the professional interest of students, expand the range of educational resources, etc. A student's personal account of educational resources is a personalized virtual workspace that provides information necessary for independent work. If EBS is a digital base of full texts of various kinds of educational resources, periodicals, monographs, textbooks, which is the most relevant and legitimate resource in the educational environment of a university, which provides the educational process, then LEB is a kind of card index of educational, educational, methodological, scientific, practical, production and other information resources, necessary for each student for the period of study. LEB can be located both on the platform of the student's personal account on the university website, as well as on the library website, or on a personal computer in which services are provided according to the status and powers of the user. The personal account library can be controlled by the teacher. LEB can be created by a student independently, with the help of a teacher, with the help of a librarian throughout the entire period of study. During the experiment, the following LEB principles were developed:

the principle of meta-subject matter – materials can be presented on the widest list of subject headings in one module, there are no restrictions on the number of material or references, even within the same course, additional modules of increased complexity, in-depth study can be created (these can be textbooks, teaching materials, monographs, periodicals, lectures, abstracts, curricula, tests, as well as personal generation resources – abstracts, term papers, practical and independent work, reports, articles created directly by the students themselves);

the principle of resource redundancy – materials can be presented in various forms: text-digital, illustrative, audio-video recording, illustrative material, multimedia, graphic, etc. what creates favorable conditions for students for self-preparation, where everyone has the opportunity to choose the form and speed of mastering the material that is comfortable for him personally;

the principle of integrability, that is, the establishment of an interactive connection between the personal account and the components of the EIOS of the university, external EBS (for example, "RUKONT"), Internet resources, resources of its own generation;

the principle of dynamism and interactivity (the ability to actively expand and develop content). Dynamism consists in the possibility of changing modules or subject headings and subheadings, adjusting the content (adaptation), taking into account the individual characteristics of students. Interactivity is aimed at making the student not only a consumer of information, but also its creator, so that he can interact with the system, which in turn will become an incentive for the student to take independent, search, cognitive actions, exchange information, interact with the teacher and classmates;

organizational principle – ensures the organization of document flow, a system of communication, access (differentiation of access rights) and security to the student's personal account;

technological – the use of interactive educational technologies, design technologies, media education technologies, the means that ensure the functioning of the EIOS (servers, local networks, software). For example, face-to-face seminars, practical exercises, testing, lectures, webinars can be held [**12**].

As part of the project, at the end of 2019, a system of links between the digital contingents of students, teachers and the library was established. The experiment consisted of three main modules: basic, technological and intellectual [**5**]. The basic module solved the problem of determining subject headings and subheadings on the basis of the GRNTI dictionary (State headings of scientific and technical information). The second module is purely technological – the development of a system of local regulations governing the functioning of the electronic information educational environment (EIES) of the university, the procedure for its application in the implementation of the program for the implementation of a student's personal account to create an LEB, regardless of the form of education. The third, intellectual one, is much more difficult, since it was necessary to fill in the headings and subheadings, using the content

of not only the university and libraries, but also Internet resources, to keep a record of the student's scientific and other preferences, this is a search module and a module of the user's individual information space.

The results of the work on the implementation of the basic module were the creation of the following headings in the EBS Russian State Agrarian University – Moscow Timiryazev Agricultural Academy to organize an advanced search for materials:

a group of specialties of the Federal State Educational Standard (from 010000 – Mathematics and Mechanics to 540000 Fine and Applied Arts);

a group of specialties of OKSVNK (from 010000 Physics and Mathematics to 250000 Earth Sciences);

file type (pdf, html, video, archive, etc.);

language (Russian, English, French, Dutch, German, Latin, Chinese);

collections (abstracts and dissertations, bibliographic indexes, biobibliographic indexes, Bulletin of the V. P. "Izvestia TSKHA", the magazine "Sheep, goats, wool business", magazines subscribed in electronic form in 2018, conferences of the Russian State Agricultural University – Moscow Agricultural Academy named after K. A. Timiryazev, memoirs, chronicles, monographs, presentations, workbooks, rare books and manuscripts, reference publications, articles by students and teachers of the Russian State Agrarian University – Moscow Timiryazev Agricultural Academy, student conferences of the Russian State Agrarian University – Moscow Timiryazev Agricultural Academy, educational and educational literature, fiction).

The list of faceted classification includes the following elements: author, supervisor, year of publication, collection, subject, type of document, code of the FSES specialty, group of specialties of the FSES, language. The selection of lexical units and their interpretation are focused on the actual characteristics of the subject area [**6**].

At the technological stage of the project implementation, local regulations were developed that regulate the functioning of the EBS, the procedure for its application in the implementation of the program for the implementation of a student's personal account for the creation of LEB, regardless of the form of training.

The third module of the experiment – intellectual, consisted in the creation and filling of the student's LEB. Based on the results of this work, students and teachers of the Russian State Agrarian University – Moscow Timiryazev Agricultural Academy have the opportunity to receive a personal login and password to enter the personal account of the Electronic Library System of the Russian State Agrarian University – Moscow Timiryazev Agricultural Academy and create a Personal Electronic Library in your personal account (Fig. 1).

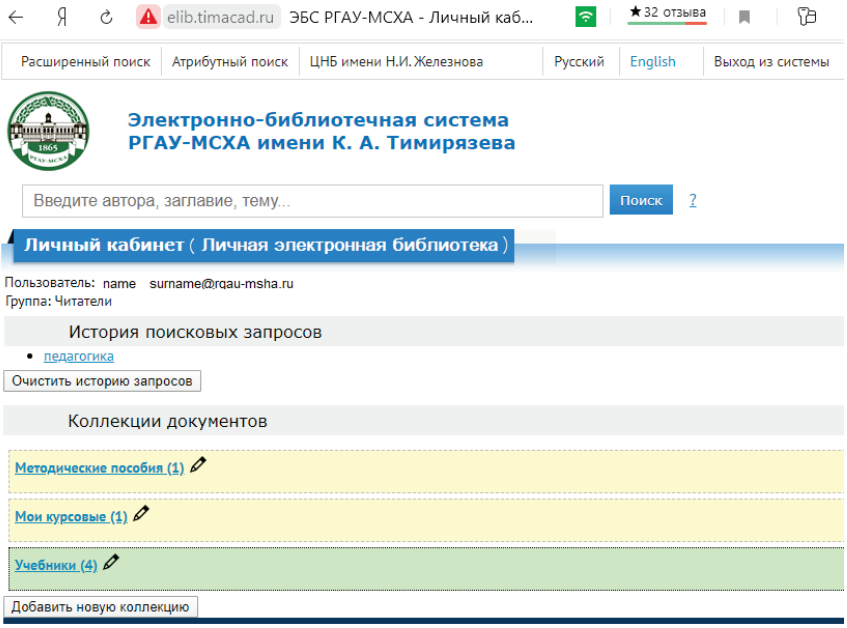

Fig. 1. Student's personal electronic library

To form a personal electronic library, the user needs to create a request in the search field. The found materials can be sorted according to the facet classification. The user selects the necessary materials and attaches them to his collection of documents. The name of document collections in a personal electronic library is made by the user independently, depending on his interests, goals, etc. For example, to prepare for a term paper, a student can create several collections of documents (Fig. 1)

to find and add from the electronic library system the necessary teaching aids, similar term papers of past years and textbooks in the studied discipline. The materials posted in the EBS are provided to the user free of charge in full. Access to the LEB materials is carried out from any device (computer, tablet, smartphone, etc.) connected to the Internet [**2**].

To analyze the effectiveness of using a personal electronic library in the process of teaching students, we carried out an experimental work, consisting of three successive stages: ascertaining, forming and control. The experiment was attended by first-year students of the Faculty of Animal Science and Biology of the FSBEI HE Russian State Agrarian University – Moscow Timiryazev Agricultural Academy, studying the discipline "Pedagogy and Psychology", in the amount of 90 people. Students were divided into control and experimental groups.

At the ascertaining stage of the experiment in both groups, a diagnosis of the educational motivation of students was carried out in the study of the subject according to the methodology developed by N. V. Kalinina and M. I. Lukyanova [**7**], as well as testing to determine the initial level of knowledge of students in the discipline under study.

At the formative stage of the experiment, the students of the experimental group studied using the educational materials of the personal electronic library of the EBS Russian State Agrarian University – Moscow Timiryazev Agricultural Academy, students of the control group received the necessary educational materials in the library (Central National Library named after N. I. Zheleznov). At the final stage of the formative experiment, the groups were re-diagnosed motivation of students to study the subject, as well as testing to determine the level of students' knowledge.

At the control stage of the experiment, we carried out mathematical and statistical processing of the information obtained at the ascertaining and formative stages of the experiment, and analyzed the results obtained.

The data of the research educational motivation of students, presented in Fig. 2, show the following results:

8% of students in the control group have a very high level of motivation, this indicator did not change with the course of the experiment. In the experimental group, at the beginning of the experiment, only 4% of

students had very high motivation, by the end of the experiment this indicator increased by 4% and amounted to 8% of the group;

16% of students have high motivation in the control group. In the experimental group, the number of highly motivated students increased by 8% and by the end of the experiment it was 23% of the group;

the number of students with an average level of educational motivation in the control group increased by 4%, in the experimental group it increased by 3%;

the number of students with a reduced level of motivation in the control group decreased by 4%, in the experimental group by 8%;

the number of students with a low level of motivation in the control group was 16%, during the experiment this indicator did not change. In the experimental group, the number of students with a low level of motivation decreased by 8% and amounted to 4% of the group by the end of the experiment.

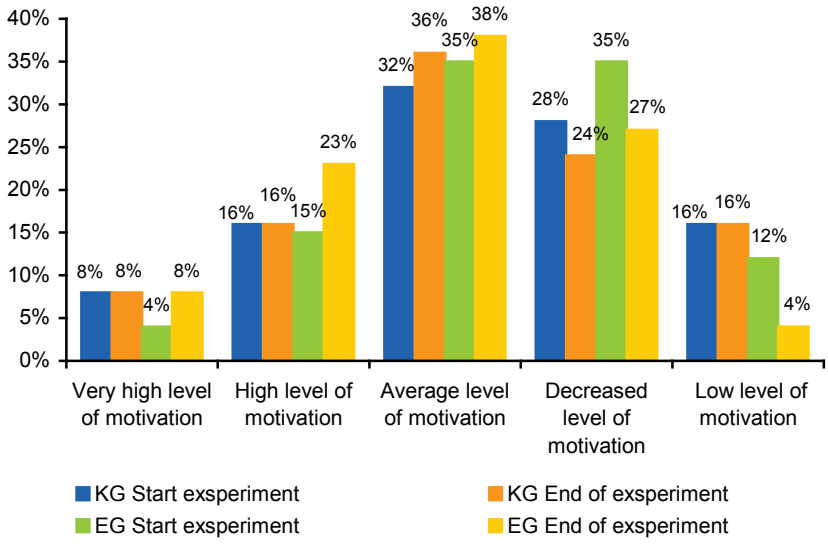

Fig. 2. Diagnostics of the level of educational motivation of students

The data obtained during the analysis of the testing of students at the ascertaining and formative stages of the experiment clearly illustrate the following results (Table):

the number of students who received an "excellent" mark in the experimental group increased by 8%, in the control group this indicator did not change;

the number of students in the experimental group who received the mark "good" during the experiment increased by 8%, in the control group by 3,85%;

the percentage of students who received an assessment "satisfactory" in the experimental group decreased by 12%, in the control group this indicator remained the same;

there were no “unsatisfactory” marks in both groups at the end of the experiment.

The progress of students in the control and experimental groups at the ascertaining and formative stages of the experiment

Group		EG		KG	
		%	people	%	people
Fine (solved 86–100%)	Start experiment	20,00	5	23,08	6
	End of experiment	28,00	7	23,08	6
	Deviation	8,00	2	0,00	0
Good (70–85% solved)	Start experiment	44,00	11	38,46	10
	End of experiment	52,00	13	42,31	11
	Deviation	8,00	2	3,85	1
Satisfactory (50–69% solved)	Start experiment	32,00	8	34,62	9
	End of experiment	20,00	5	34,62	9
	Deviation	12,00	3	0,00	0
Unsatisfactory (resolved <50%)	Start experiment	4,00	1	3,85	1
	End of experiment	0,00	0	0,00	0
	Deviation	4,00	1	3,85	1

Based on the data obtained, it can be concluded that academic performance in the experimental group increased during the experiment, in the control group there were no significant changes.

During the experiment, we also noted that the students of the experimental group were able to independently study more educational material and additional literature than the students of the control group.

Using the data obtained, it can be concluded that the use of a student's personal library during training increases the educational motivation of students to study the discipline, and also has a positive effect on student performance, improving the quality of education. The goal of the experimental work has been achieved.

Information technologies play an important role in our world; modern students are increasingly using electronic media in the learning process. Electronic library systems possessing a powerful resource potential for organizing training should organize work to attract students to use this content [**3**]. This work is possible only when creating an interesting, understandable and easy-to-use personal user account. The LEB developed by us for the student of the Moscow State Agricultural University named after K. A. Timiryazeva, includes the necessary components for organizing access to information and effective work with materials of the electronic library system. Our research indicates the effectiveness of its use in the learning process. The educational motivation of students using educational materials through the means of LEB is growing, academic performance in groups connected to the electronic library system is increasing. LEB can be successfully used as a component of the electronic information and educational environment of an organization, increasing the quality of student education.

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