Gnedkova Olga
Kherson State University, Kherson, Ukraine

BLENDED LEARNING AS TOOL OF INTENSIFICATION OF EDUCATIONAL PROCESS IN TEACHING DISCIPLINE «METHODS AND TECHNOLOGIES OF DISTANCE LEARNING»

The problem of constructing a new model of training process of future and highly competitive professionals in high school arises due to the global process of society informatization and the involvement of ICT in all spheres of human activity, including the educational process of high school.

In conditions of Ukraine integration into the European educational space, the significant changes in the curriculum of training of professionals are happened, that the number of classroom training hours is reduced and the number of hours of self-study training is increasing. However, self-study learning raises many difficulties as for students and teachers, for example, the lack of guidance on the tasks for independent work, lack of consultation of teachers, insufficiently *formed students' skills of self-education and so on. These problems adversely influenced on the quality of future professionals in high school.*

Thus, there is need to implement blended learning in educational process for solving a number of problems. Thus, the model of the educational process with the use of blended learning is suggested, based on the analysis of the scientific literature in training future professionals, the results of international research papers and trainers. The interactions between elements of the model are established and their importance in the educational process as a whole is emphasized. The proposed model was tested during the learning process of the course "Methods and Technologies of Distance Learning" for students of Master's degree, specialty "Computer Science" Faculty of Physics, Mathematics and Computer Science, Kherson State University.

Keywords: *blended learning,* intensification, *information and communication technologies, electronic educational-methodical complex, distance learning, distance learning system «Kherson Virtual University».*

Introduction

Due to the significant social and economic changes and complex use of information and communication technologies in all spheres of human activity there is a global process of informatization of society as a whole. The consequence of the rapid development of information and communication technology (ICT) is the need to modernize the education system, including its informatization, because the formation of general cultural, psychological, social and professional prerequisites for the development of the information society begins in education process. The usage of new information and communication technologies, mobile devices and the World Wide Web in the educational process of higher school has become the necessary prerequisite for training of highly skilled specialists. At the same time the new forms of learning such as distance learning, online learning, mobile learning and blended learning are rapidly developed. The problem of implementing and using new forms of learning in process of training of future qualified specialists is set before the institution of higher education.

Due to integration of Ukraine into the European educational space and the adoption of the Bologna education system the significant changes in the curriculum of training future professionals have been made, such as decreasing the number of class training hours and increasing the number of hours for self-instruction. However, the self-instruction causes many difficulties in students and

teachers that it has negative influence on the quality of future qualified specialists. Therefore, there is need to use blended learning in educational process. The use of both classrooms teaching and on-line learning in education is called "blended learning". Blended learning is one of the most promising innovative trends in higher education.

The use of blended learning in learning process is studied and researched by many native and foreign scholars and educators, such as V. Kuharenko, Y. Trius, A. Stryuk, O. Musiyovska, T. Koval, N. Rashevska, S. Semerikov, J. Sener, A.Heinz and others.

Unfortunately, this form of learning is not enough studied from a didactic point of view and has no clear methodological guidelines for its use in the learning process. This problem becomes topical and needs further theoretical and practical studies.

The **purpose** of our research is to develop the model of blended learning and make its approbation in educational process in teaching discipline "Methods and Technologies of Distance Learning" in high school.

Main part

First of all it is necessary theoretically to substantiate the essence of the concept of "blended learning". Making an analysis of a number of scientific papers devoted to the use of blended learning technology in the learning process it should be noted that the current scientific literature ambiguously interpret the term "blended learning". This is due to the translation of the word "blend" that means "mix", "connect", "combine" and so on. Therefore "blended learning" is learning combined classroom teaching and on-line learning in education.

The concept "blended learning" is defined by Y. Trius "as a purposeful process of obtaining knowledge, acquisition of skills, mastering the ways of learning by learning subjects and the development of creative abilities on the base of an integrated and systematic use of traditional, innovative teaching technologies and ICT according to the principles of complementarity in order to improve the quality of education"[15].

J. Sener [18] notes that most clearly the features of the blended learning are revealed if the proportion of visits to university by students is in the range of 20 % to 80 %. Methodists V. Kuharenko [4]and J. Sener [18] indicate that in blended learning from 30% to 80% of the curriculum should be delivered by tools of electronic learning.

A. Stryuk gives the definition of the term "blended learning" as a pedagogically well-balanced combination of technologies of traditional, electronic, distance and mobile learning to integrate classroom and out-of-school learning [14].

Summarizing scientists' researches "blended learning" should be understood as a combination of distance and e-learning with traditional forms of education: full-time and part-time learning. From educational point of view "blended learning" is a new technology of learning process; it is significantly different from traditional learning. Specific differences are found in the relations between teacher and students and the content of the educational activity. However, blended learning has many common features with traditional learning in organizing educational process, which is programmable and agreed with the relevant regulations, including the same learning activities, and the close connection between teacher and student.

O. Kostina identifies three main components of blended learning model that are used in today's educational environment:

  – Full-time (face-to-face) - the traditional format of classes "teacher-student";
  – Self-study learning – students learn the educational material and communicate with teacher and students in distance course, and find materials through resource map, search educational information in local and global networks etc.;
  – Online (distance) learning – learning with the help of distance learning system, the online collaboration of students and teachers, e.g. via Internet conferencing, Skype and wiki , etc. [6].

Schematic model of blended learning can be represented as follows (Picture 1):
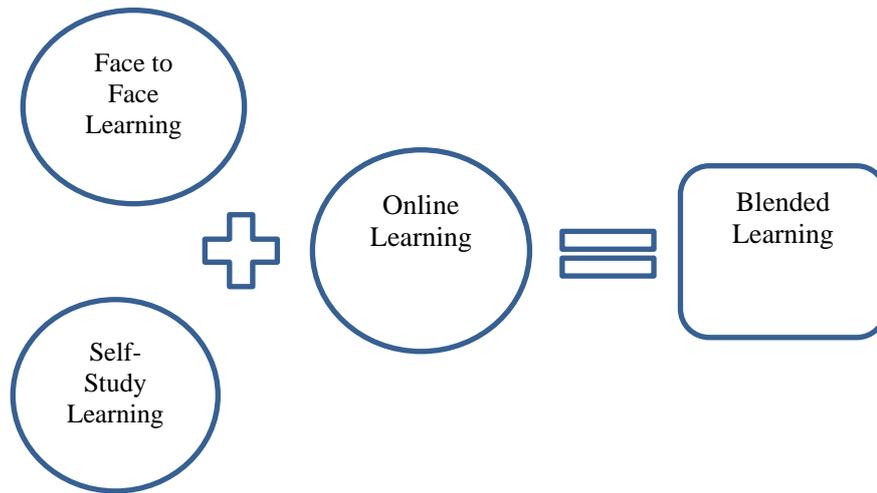
Fig. 1. Model of blended learning

The model elements operate in constant relationship to form a single process of blended learning. Between the components of the model is a constant integration in the learning process. The integration of the components of the model on the left is equivalent to process of blended learning.

Thus, blended learning - a system in which its components interact harmoniously if they are properly methodically arranged.

There are some methodological models of usage of blended learning in the learning process. Let us examine them:

1. Face-to-Face Learning - the traditional format of classes "teacher -student";
   – according to the curriculum full-time- auditorium classes are conducted and the corresponding number of topics is assigned for self-study learning;
   – laboratory, practical works and consultations according individual work are conducted in classrooms;
   – teacher develops the schedule of assignments and tests, the deadlines for sending assignments are determined by teacher;
   – control of knowledge is conducted with the help of doing practical or laboratory works and passing final tests.
2. Face-to-Face Learning + Online (Distance) Learning model is implemented in the following stages:
   – teacher designs the learning process of discipline it means electronic educational-methodical complex of course in Distance Learning System (DLS) , and determines the material for the full-time and distance learning;
   – connect students to DLS of University;
   – students study the theoretical material by preliminary knowledge of lecture text or presentation on site of DLS and discuss the key issues during lectures in class;
   – students do practical (laboratory) works in mixed (blended) mode , that is the main part of practical work is done by students with teacher in the classroom, extra (creative) part is done by self-study at home, results are sent by e-mail to teacher;
   – control of knowledge is conducted with the help of current and final test in DLS and teacher checks practical or laboratory work;
   – student's received grades are recorded in an electronic journal or "Rate", which is available to students and administration of high institution;
   – final evaluation is conducted in the traditional (full-time) form (test, exam, etc.).
3. Self-Study Learning + Online (Distance) Learning model is used to organize part-time learning of students it is implemented in the following stages:

- according to the curriculum the educational-methodical complex of discipline is developed by the teacher based on the increased the amount of educational material for self-study learning of part-time students and it requires a detailed methodological guidelines to study the course and do tasks, etc.;
- during the session review lectures are conducted, teacher makes recommendations for studying the course and doing control tasks on the site of distance learning system, classes are conducted to acquire skills in distance learning;
- connect students to DLS of University;
- teacher developed timetable for carrying out tasks and current testing; defined deadlines for sending assignments;
- teachers consult students in full-time and distant mode on site of DLS and via e-mail, forum, chat, Skype and other electronic communications;
- at examinations lectures, seminars, laboratory classes are conducted in classroom;
- control of knowledge is conducted with the help of current and final test in DLS and teacher checks practical or laboratory work;
- Student's received grades are recorded in an electronic journal or "Rate ", which is available to students and administration of high institution;
- final evaluation is conducted in the traditional (full-time) form (test, exam, etc.).

Thus, the model of integration of different forms of learning in a blended form - a holistic learning process, which suggests that one part of the learning activities are done by students in the classroom, and the other part are made in distant form, in which self-study tasks are dominated. Teacher should determine what activities student should do in class and what types of tasks student should do by oneself on site of distance learning system. In the audience it is advisable to conduct the discussion of key issues of lectures, discussions, group work, that is, those activities that require direct communication contact teacher with students and students with each other. Control, final works, defense of projects should be carried out in class. Distant part of the course includes: independent search, research work with online resources and doing additional tasks, laboratory and practical work, collateral execution of creative tasks (projects), consultations with the teacher, carrying out the current and final control knowledge by testing in distance learning system.

The rapid development of Internet services, cloud technology, social networks and their active use in the learning process increases the motivation of students to learn. Cloud technologies and social networks help both teachers and students to create "personal learning environment".

Personal learning environment is a set of resources needed to find answers to various questions, to create the right context for learning and illustrate the process under study. The nodes of the environment can be people, informational online materials, information materials created by the user [12].

In the process of blended learning the elements of personal learning environment, such as social networks (Facebook, OpenID, Classmates, etc.), cloud technologies (Google Docs, YouTube, Office Web Apps, etc.), memory cards, Twitter and so on can be used. With these services, the teacher can interact with students to provide educational material, to inform about events and use a variety of teaching models.

The change of form of learning organization changes the role of teacher, in distance learning teacher is called "tutor" , in blended learning – "facilitator". N.Bibik mentioned: "facilitation - a style of pedagogical communication, which provides the easing of interaction at a joint activity, unconstrained help to group or individual man in search of ways to identify and resolve problems, establish communicative interaction between the persons of activity" [3, p. 953-954]. The term "facilitator" is introduced by K. Rogers, who calls the teacher "facilitator of communication", considers that teacher should help the student to learn, to underline ourselves as individuals, to interest and support during the knowledge search. During blended learning facilitator establish communication between students and students with teacher and performs the function of learning management with active use of information and computer technology (ICT) [14].

Experimental research

Blended learning is used in study course "Methods and Technologies of Distance Learning". This course is intended for masters, specialty "Computer Science" Faculty of Physics, Mathematics and Computer Science, Kherson State University. According to the curriculum of the course volume of education material is 108 hours. In class 44 hours of educational material are studied, and 64 hours are studied by students themselves. We consider it is necessary to introduce the blended learning in educational process to support students during the self- study of educational material of course "Methods and Technologies of Distance Learning".

Electronic educational-methodical complex of discipline "Methods and Technologies of Distance Learning" was developed in the distance learning system (DLS) «Kherson Virtual University» http://dls.ksu.kherson.ua/dls/Default.aspx?l=1 (Picture 2). This DLS is a software development of department of Support for Academic, Informational and Communicational Infrastructure Kherson State University [7]. It satisfies the international standards of distance learning IMS and SCORM.
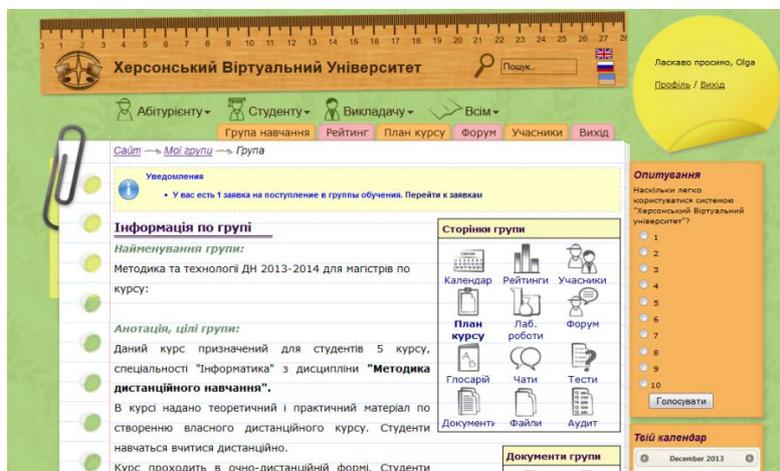

Fig. 2. Page of distance course in DLS «Kherson Virtual University"

In teaching this course we combine classroom work with elements of distance learning. All educational material is published in distance learning course on site of DLS "Kherson Virtual University". Control of knowledge is carried out with the help of automated testing. Communication between students and teachers is carried out by email, forum and chat. Students send the results of practical by email. In forums and chat students and teacher discuss problematic issues related to the themes of the course. Teacher conducts webinars additional information of the subject is considered.

There are the basic elements of blended learning, which are used in teaching the course "Methods and Technologies of Distance Learning":
- conducting lectures in lecture-rooms, with further discussion of educational material within the forum;
- practical tasks are conducting in the classroom and distantly with teachers' tutorials via e-mail;
- implementation of independent creative, experimental search tasks with subsequent placement of results in the Internet;
- passing tests in distance learning system, followed by teacher's checking;
- taking part in discussions at forum of the course;
- taking part in webinars;
- Knowledge control (credit) is in classroom.

For approbation the use of blended learning in learning process we offered the students of the course the questionnaire "Blended learning as a mean to intensify the educational process". The questionnaire reflects the interrelations of the elements of presented model of blended learning. Cloud technologies were used for more convenient organization and processing of questionnaire, one of which is an online service Google Forms, which allows working with questionnaire respondents distantly and at convenient time.

As a result of questionnaire we received a summary statistically processed table, which is represented graphically in a diagram. According to the answers of the respondents, 71% of students believe that principle of person-oriented education is provided with the help of model of blended learning, 71% of students believe that they acquired skills of self-organization, self-discipline and self-study while learning in the course of using blended learning, 57% of students believe that motivation to learn is increased using the model of blended learning, all respondents (100%) think that blended learning has perspectives for further development and use in the learning process. More detailed information of questionnaire results - summary table and charts it is possible to view -https://docs.google.com/forms/d/1BS8cuA-gu2i8CX3vpB5blsD4SVQ7q5Snoq8GYvXfhuM/viewanalytics

Thus, blended learning is really an important tool to improve the learning process, such as blended learning increases the motivation to learn and expedites the learning.

Due to blended learning:
1. Student gets the opportunity to learn in a group with a teacher and at home in convenient time;
2. Principle of person-oriented education is provided, student himself sets the optimal speed and intensity of the learning process;
3. Self-development, self-disciplined of student, forming interpersonal communication, teamwork are carried out.

Conclusion

As a result of our research the model of blended learning is developed and proposed, the interactions between the elements of the model are set and their importance in the educational process as a whole is emphasized. According to integration of components of blended learning model methodological models for practical use in the learning process are presented. The proposed model was tested during the learning process of the course "Methods and Technologies of Distance Learning" for masters, specialty "Computer Science", Faculty of Physics, Mathematics and Computer Science, Kherson State University. As a result of processing the questionnaire responses, we concluded that blended learning increases the motivation to learn and expedites learning process.

REFERENCES

1. Bykov V. Innovative models of education and training of skilled personnel for high industries in Ukraine / Valeriy Bykov, Mariya Shyshkina/ Information technologies in education : Scientific journal. Issue 15. – Kherson : KSU, 2013. – 350p.
2. Encyclopedia of Education / Acad. Ped. Sciences of Ukraine; Chief Ed. V. Kremen. - K.: Yurinkom Inter, 2004. - 1040p.
3. Koval T. Theoretical and methodological foundations of professional training of future managers and economists in information technology: Abstract of dis. Dr. ped. sciences: 13.00.04 - Theory and Methods of Professional Education / Tamara Koval; Academy of Pedagogical Sciences of Ukraine, Institute of Teacher Education and Adult Education. - K., 2008. - 44p.
4. Blended (Combined) Learning [Electronic resource]. – Mode of access: http://kvn-e-learning.blogspot.com/2012/08/blog-post_22.html

5. Conception of eLearning development at NTU "KPI" on 2009-2016 years [Electronic resource]. - Mode of access: http://cde.kpi.kharkov.ua/cdes/New/Conception_eL.pdf

6. Kostina E. Model of Blended learning and its use in teaching foreign languages / E. Kostina / / Proceedings of High institutions: Scientific Journal. Series "Humanities" - Ivanovo: Izd. GOU VPO "ISHTU", 2010. - Vol 1. - Vol. 2. - P. 141-144.

7. Kravtsov D.G. Certificate of registration of copyright in work №32719 Computer program "Distance learning system «Kherson Virtual University»" / Kravtsov D.G., Kravtsov G.M, Spivakovsky A.V., Gnedkova O.O., Kaminska N.G. Ministry of Education and Science of Ukraine, State Department of Intellectual Property. - Kyiv. - 06.04.2010.

8. Kravtsov G.M. System of Monitoring of Electronic Informational Resources Quality in High Institutions / Information Technology in Education. Issue 2. - Kherson. - 2008. - P. 42 - 46.

9. Kravtsov G.M. Modeling of system of quality management of electronic learning resources: integrated and differentiated approaches / G.M.Kravtsov // Information Technologies in Education. - 2012. - № 11. - P. 24-31.

10. Morze N.V. Models of effective use of information and communication technologies and distance learning technologies in high institution [Electronic resource] / N.V. Morze, O.G. Glazunov // Information technology and learning tools. - 2008. - № 2 (6). - Access to the journal: http://www.ime.edu-ua.net/em6/content/08mnvshi.htm

11. Musiyovska O.F. Problems of implementation of blended learning in higher education in Ukraine [Electronic resource]. - Access:

12. http://www.nbuv.gov.ua/ejournals/ITZN/em7/content/08mofshu.htm

13. Personal learning environments – PLE [Electronic resource]. - Mode of access: http://www.smart-edu.com/index.php/distantsionnoe-obuchenie/personalnaya-sreda-obucheniya-ple.html

14. Rashevska N.V. Software of mobile learning [Electronic resource] / N.V. Rashevska // Information technology and learning tools. - 2011. - № 1 (21). - Access to the journal: http://www.nbuv.gov.ua/e-journals/ITZN/2011_1/Rashevska.pdf

15. Stryuk A.M. Designing blended learning of system programming of Bachelor of Software Engineering. Theory and methods of teaching mathematics, physics, computer science: Collection of papers. Issue X: in 3 volumes. - Krivoy Rog: Publishing Department NMetAU, 2012. - Vol 3: Theory and methods of teaching science. – P. 157-164.

16. Trius Y.V. Combined training as innovative educational technology in higher education / U.V Trius, I. V.Gerasimenko // Theory and Methods of e-learning: a collection of papers. Issue III. - Krivoy Rog: Publishing Department NMetAU, 2012. - P. 299-308.

17. Shunevich B.I. Development of distance learning in higher education in Europe and North America: the dissertation doctor of pedagogical sciences: 13.00.01 - Theory and History of Pedagogy / B.I. Shunevich; Institute for Higher Education of Pedagogical Sciences of Ukraine. K., 2008.

18. Heinze A. Reflections On The Use Of Blended Learning [Electronic resource] / Aleksej Heinze, Chris Procter // Education in a Changing Environment. 13th-14th September 2004. – University of Salford, Salford, Education Development Unit. – 2004. – 11 p. – Mode of access:http://www.ece.salford.ac.uk/proeedings/papers/ah_04.rtf

19. Sener, J. Why are there so few fully online BA/BS programs in traditional "arts and sciences" disciplines? / J. Sener // On the Horizon. 2002. Vol. 10. Iss. 1. P. 23–28.

20. H. Kravtsov, D. Kravtsov. Knowledge Control Model of Distance Learning System on IMS Standard / Innovative Techniques in Instruction Technology, E - learning, E - assessment, and Education. - Springer Science + Business Media V.B. - 2008. - P.195 - 198.

Стаття надійшла до редакції 05.06.2014.

Гнєдкова О.О.

Херсонський державний університет, Херсон, Україна

КОМБІНОВАНЕ НАВЧАННЯ ЯК ЗАСІБ ІНТЕНСИФІКАЦІЇ НАВЧАЛЬНОГО ПРОЦЕСУ ПІД ЧАС ВИКЛАДАННЯ ДИСЦИПЛІНИ «МЕТОДИКА І ТЕХНОЛОГІЇ ДИСТАНЦІЙНОГО НАВЧАННЯ»

У зв'язку із глобальним процесом інформатизації суспільства та залученням інформаційно-комунікаційних технологій (ІКТ) в усі сфери діяльності людини, в тому числі у навчальний процес вищої школи постає задача побудови нової моделі процесу підготовки майбутніх висококваліфікованих та конкурентоспроможних фахівців.

В умовах інтеграції України в європейський освітній простір відбуваються значні зміни у навчальній програмі підготовки фахівця, тобто зменшується кількість аудиторних навчальних годин та збільшується кількість годин для самостійного опрацювання навчального матеріалу студентами. Але, самостійна робота викликає багато труднощів як у студентів, так і у викладачів, наприклад, відсутність методичних вказівок щодо виконання завдань для самостійної роботи, недостатня кількість консультацій викладачів, недостатньо сформовані у студентів навички навчатися самостійно тощо. Дані проблеми негативно впливають на якість підготовки майбутніх фахівців вищих навчальних закладів.

Отже, виникає необхідність впровадження комбінованого навчання у навчальний процес для вирішення ряду проблемних питань. На основі аналізу наукової літератури з питань професійної підготовки майбутніх фахівців, результатів міжнародних досліджень та статей методистів запропоновано модель навчального процесу з використанням комбінованого навчання. Встановлено та розглянуто взаємозв'язки між елементами моделі та підкреслено їх значущість у навчальному процесі в цілому. Запропоновану модель було апробовано підчас процесу навчання курсу «Методика і технології дистанційного навчання» для студентів-магістрантів спеціальності «Інформатика» факультету фізики, математики та інформатики Херсонського державного університету.

Ключові слова: комбіноване навчання, інтенсифікація, інформаційно-комунікаційні технології, електронний навчально-методичний комплекс, дистанційне навчання, система дистанційного навчання «Херсонський Віртуальний Університет».

Гнедкова О.А.

Херсонский государственный университет, Херсон, Украина

КОМБИНИРОВАННОЕ ОБУЧЕНИЕ КАК СРЕДСТВО ИНТЕНСИФИКАЦИИ УЧЕБНОГО ПРОЦЕССА ВО ВРЕМЯ ПРЕПОДАВАНИЯ ДИСЦИПЛИНЫ «МЕТОДИКА И ТЕХНОЛОГИИ ДИСТАНЦИОННОГО ОБУЧЕНИЯ»

В связи с глобальным процессом информатизации общества и внедрением информационно - коммуникационных технологий (ИКТ) во все сферы деятельности человека, в том числе в учебный процесс высшей школы возникает задача построения новой модели процесса подготовки будущих высококвалифицированных и конкурентоспособных специалистов в высших учебных заведениях.

В условиях интеграции Украины в европейское образовательное пространство происходят значительные изменения в учебной программе подготовки специалиста, то есть уменьшается количество аудиторных учебных часов и увеличивается количество часов для самостоятельной работы учебного материала студентами. Однако, самостоятельная работа вызывает много трудностей как у студентов, так и у преподавателей, например, отсутствие методических указаний по выполнению заданий для самостоятельной работы, недостаточное количество консультаций преподавателей, недостаточно сформированы у студентов навыки самостоятельному обучению и т.д. Данные проблемы негативно влияют на качество подготовки будущих специалистов высших учебных заведений.

Следовательно, возникает необходимость внедрения комбинированного обучения в учебный процесс для решения ряда проблемных вопросов. На основе анализа научной литературы по вопросам профессиональной подготовки будущих специалистов, результатов

международных исследований и статей методистов предложена модель учебного процесса с использованием комбинированного обучения. Установлено и рассмотрены взаимосвязи между элементами модели и подчеркнуто их значимость в учебном процессе в целом. Предложенная модель была апробирована во время процесса обучения курса «Методика и технологии дистанционного обучения», предназначенного для студентов - магистрантов специальности «Информатика», факультета физики, математики и информатики, Херсонского государственного университета.

Ключевые слова: комбинированное обучение, интенсификация, информационно-коммуникационные технологии, электронный учебно-методический комплекс, дистанционное обучение, система дистанционного обучения «Херсонский Виртуальный Университет».