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Professional article

APPLYING BLENDED LEARNING COURSES FOR EDUCATION IN THE CONTEMPORARY UNIVERSITY. INFORMATION SYSTEM 'E-UNIVERSITY' OF THE UNIVERSITY OF VELIKO TARNOVO, BULGARIA

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Abstract. *In the past few years, blended learning has become more and more rapidly spread in the field of education worldwide. The idea of blended learning seems attractive because it allows for the preservation of the traditional forms of education resulting from accumulated pedagogical experience for centuries and we could altogether use the various educational functions of new technologies. The methodology developed by the author introduces a key subsystem from the integrated management information system of Veliko Tarnovo University, namely the 'E-University' subsystem. On the base of own experience and the analyzed research, there is an opportunity to use different media, individualize the learning process, opportunity to use different styles of learning, organizing joint learning activities. The successful application of this approach together with the organization of education and the quality of the virtual environment require the presence of the human factor which is able to combine different types of learning environments in order to provoke students to perform various types of activities and develop their potential abilities and talents in the future.*

Key words: *blended learning; E-University, organization of education, university information system*

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1. INTRODUCTION

Computers and the Internet are part of the environment in which young people learn and live. Undoubtedly, the development of technologies brought to changes upon the traditional learning environment. In the past few years, governments have been seriously investing in information and communication technologies (ICT) at universities. The quality of educational resources has been significantly increased. However, international studies[1] establish that digital technologies are not yet completely integrated in the teaching and learning process. A part of the explanation for this limited success is that schools and educational systems are still not ready to realize the potential of technologies. The insufficient pedagogical training on how to use technologies during the teaching process, the gaps in lecturers and students' digital knowledge, the difficulties in the need to find high quality digital learning resources and software, the lack of clarity in relation to educational goals all lead to a disparity between expectations and reality. Universities shall respond to these challenges, otherwise technologies may cause more harm than benefits. Despite not being able to transform education by themselves, digital technologies have a great potential to change teaching practices and open new horizons. The challenge of achieving this transformation is rather oriented towards **searching for ways to improve teaching and training skills in universities with the help of technologies**. Blended learning is a possible solution. In the past few years, blended learning has been more and more spread in the field of education worldwide. The idea seems attractive because it helps for the preservation of the traditional forms of education resulting from accumulated pedagogical experience for centuries and we could altogether use the various educational functions of new technologies.

2. DEFINITION AND FUNDAMENTAL CHARACTERISTICS OF BLENDED LEARNING

The spread of Internet has increased the popularity of distance learning.

2.1. Learning environments

There are actually three main types of learning environments described in modern Pedagogical literature (Prohorets and Plekhanova, 2015):

- Traditional learning environment means that students and lecturers (instructors) are both in the same place and in the same time.
- Asynchronous environment provides education regardless from the place and time;
- Synchronous learning environment creates a sense of virtual community. This means that each participant should be in front of his/her computer at the present moment. Students and lecturers are both required to plan a schedule which shall be available to everybody.

[1]Innovating Education and Educating for Innovation: The power of digital technologies and skills © OECD 2016 http://www.oecd.org/edu/ceri/GEIS2016-Background-document.pdf (p.9).

2.2. Brief comparative analysis of traditional and electronic education

Advantages of *traditional classrooms* (Yalçınkaya, 2015):

- good social contact between students and lecturers;
- possible immediate reactions depending on specific situations and the necessity of supporting students;
- adult students prefer old methods and feel more comfortable with traditional forms of education.

Disadvantages – classroom education can be expensive if students have to travel to the place where the classroom is situated. If the training is based on lectures, discussions and interactions are reduced. Classrooms can put students into a passive role and their attention could be lost.

Electronic asynchronous training – *Advantages* (Yalçınkaya, 2015):

- both students and lecturers take part in the training process regardless of time and place;
- using media instrument increases motivation;
- training courses are ceaselessly updated;
- access to a large amount of information;
- all elements and participants in the training (trained students, teachers, tutors, resources, tests) are in contact between each other;
- an international interaction is also possible.

On the other hand, electronic education is suitable for all trained students as it focuses on equal treatment and includes facilitation of the access for **disadvantaged trained students**. These people are in a more unfavourable situation due to personal hardships or impediments which restrict or prevent them from taking part in traditional classes.

Disadvantages – electronic training also has its weak aspects, for example (Yalçınkaya, 2015):

- the creation of an Internet platform requires a budget
- the preparation of training courses and electronic instruments requires experienced experts in the specified field and this is usually more expensive than expected;
- staying in front of the monitor for a long time causes some health issues as well as eye fatigue;
- the self-motivation of trained students is obligatory so some profiles of students are not appropriate for this type of training;
- some of the lecturers/tutors lack the necessary competence in relation to working with electronic tools like lecturer's tools for example;
- the social component which is defined as an interaction between a lecturer and a student is important but it is **missing** in the asynchronous training realized through Internet. Self-discipline of trained students is really significant about electronic training but unfortunately when the computer is not able to respond to student's questions, the concentration is lost.

Electronic synchronous training – Virtual classrooms let lecturers and trained students be at different places in the same time and they also let the lecturer keep the lecture for watching later on. The topics could be similar to those taught at traditional classrooms unless they are too complicated (Kaur, 2013, p. 613).

Advantages: students and lecturers are not supposed to be physically present in the classroom. Students can 'raise their hands' by pushing a button. Information is presented through applications for desktop computers or through sharing in Internet.

Disadvantages: each participant should be online at the same time. In most cases, trained students need modern computers that possess the necessary quality parameters and are connected to a high-speed Internet. Just like it is at the traditional classroom, information sessions could put the trained student in a passive role and thus his/her attention could be lost.

As a result from the debate on which environment allows students learn more efficiently – the electronic or the traditional learning environment, **a new approach called blended learning** arises. This idea seems attractive because it allows for the preservation of the traditional forms of education resulting from accumulated pedagogical experience for centuries and we could altogether use the various educational functions of new technologies.

As a new model for organization of the education process, blended learning has attracted the attention of many researchers and lecturers worldwide and it gets more and more rapidly spread in the field of education worldwide.

2.3. Defining blended learning

There are different interpretations of blended learning but all come down to the understanding that blended learning or what is also called hybrid learning is a combination of learning environments.

According to some scientists, when the environment is not only synchronous or asynchronous, we could say that it is a blended learning environment (Prohorets and Plekhanova, 2015). Other scientists define blended synchronous learning as studying and teaching processes in which trained students take part in lectures that require face-to-face contact and in lectures realized through multimedia synchronous technologies like video-conference calls, web conference calls or virtual world (Bower et al., 2015, p. 1).

The most popular definition of **blended learning** (BL) or hybrid learning is: **a method of learning which combines traditional face-to-face methods in the classroom with computer assisted activities (electronic learning)**. The training is already introduced in a new form: as a combination of traditional face-to-face lectures in the classroom and distance electronic learning, more particularly: in a blended regime (Güzer and Caner, 2014, pp. 4596-4597; Wicks et al., 2015, p.54; Köse, 2010).

Blended learning is only effective when:

- the components are well-balanced and the educational goals are methodically and adequately programmed;
- the blending of the face-to-face learning environment and the online learning environment is precisely planned so that there are more benefits from this approach (Krasnova, 2015, p. 401).

2.4. Blended learning characteristics

Blended learning combines traditional educational practices with modern technology-based approaches. This educational approach is of great importance nowadays because it has undoubted **advantages** compared to the traditional classroom or online distance learning in their pure form, for example:

- guarantees **independence** on time and place (Yalçınkaya, 2015; Ruokonen and Ruismäki, 2016);
- provides **more than one media** for use. The simple fact that there are two or more different ways for preparation (reading a book, acquiring a skills through practice, listening to an audio lecture, interaction with the web-based course) has a significant impact over the mastery of knowledge (Krasnova, 2015);
- maintaining **different styles of learning** (Prohorets and Plekhanova, 2015). Regardless of the style of learning, individuals shall find something which is convenient for them from the diversity of modern tools for teaching and studying (Benson and Kolsaker, 2015, p. 324);
- developing social competence – increasing the **interaction** between student-teacher, student-student, student-content, student – non-formal external resources (Ruokonen and Ruismäki, 2016, p. 110);
- **Own speed of studying** – students can observe their own speed of studying without depending on other trained students (Yalçınkaya, 2015)
- **Individualization of the educational process** – the different levels of students' knowledge could be balanced individually at the beginning of the course without obstructing other participants in the training process (Yalçınkaya, 2015). There is a great variety of tasks in the online component of the blended course which contributes both for elimination of knowledge gaps and for more profound learning.
- Gradual **change of learning** – from learning the focus of which is content towards learning in which trained students become active (Ruokonen and Ruismäki, 2016, p. 110);
- The lecturer performs a few **interrelated roles** and one of the main roles is that of tutor who supports students in their choice of an individual course of training, as well as a study content consultant. Lecturers remain key figures in educational process but they also perform various activities from teaching knowledge to organizing the educational process (Krasnova and Demeshko, 2015, p. 405-406).
- **Purposeful, intensive and controlled self-educating work**. Blended learning stimulates the development of skills for individual learning and for searching information which contributes for the development of responsible attitude towards learning, motivation and time management (Krasnova and Demeshko, 2015, p. 405-406).
- Organizing **joint learning activities** (collaboration), including group project work, carrying out discussions and seminars organized as forums and video conferences (Krasnova and Demeshko, 2015, p. 405-406).
- **Flexible learning approach**. Blended learning suggests flexible curriculum which gives opportunity to choose modules, speed and time for studying (Krasnova and Demeshko, 2015, p. 405-406).

The analysis of advantages and restrictions of learning environments leads us to the conclusion that blended learning causes **change in learning strategy**.

3. Factors for Successful Application of Blended Learning Courses

Despite the blended learning method is relatively new as mentioned above, the interest towards it is increased because this method combines traditional and innovative practices.

In our opinion, the success of blended learning depends on: the organization of learning, quality of the virtual environment and the degree of students' and lecturers' preparation in a virtual environment.

3.1. First: organization of education

The organization of education includes a variety of used methods and means, structure and content of the study course, new ways of teaching, time allocation of study activities, teaching and studying styles, etc.

New ways of teaching

A new promising approach which is a form of blended learning is the so called Inverted classroom model in which the time for transfer of knowledge and the time for exercises are inverted.

In principal, the idea is the following: what is usually done in class shall be done at home and what is usually done as homework should be done in class (Steele, 2013, p. 2; Kharbach, 2012; Bergmann and Sams, 2012, p. 13; Caligaris et al., 2016, p. 838).

Types of flipped classrooms (Steele, 2013)

Traditional Flipped classroom – the model with which most lecturers start when they have never 'flipped' their classroom.

Mastery classroom – this is usually an evolved version of the traditional flipped classroom in which all students work individually with their own speed of learning.

Peer Instruction Flipped Classroom

Students study the basic material outside the classroom by using video lessons. While being in class, they individually answer some key conceptual questions. The lecturer collects their answers and groups them in pairs in terms of correct or false answers. In most case, the student that gave a correct answer manages to convince his/her peer in the truthfulness of his/her answer. It is unlikely for a student who gave a wrong answer to convince a colleague who has answered correctly.

Problem-based Learning Flipped Classroom

In this model, students make a research on a certain matter and learn during the research process. During the research process, students watch related video lessons which would help them solve occurring tasks.

The flipped classroom is a promising technology which should not be underestimated because it has a great pedagogical potential both for lecturers and students which is contained in the following aspects:

- The integration of the flipped classroom in the study process leads to increased motivation and interest of students for learning.
- Besides, the method has a positive impact upon students' self-discipline and self-control which is due to the fact that students assume responsibility for their own learning. Regardless of the fact that the number of face-to-face activities is reduced, the quality of the learning process is not affected.
- Besides, the results from cited research show that there is an improvement of students' academic achievements.

The virtual classroom is another new method of teaching based on technologies

The virtual classroom is an online learning environment which imposed an approach which is focused on the student. Just like it is in the real classroom, in the virtual classroom

the student takes part in a synchronous communication which means that the lecturer and students have entered in the virtual classroom at the same time.

Examples of using social media as a virtual classroom:

First example

The increased influence of social media (like Facebook, Twitter, MySpace, LinkedIn) leads to:

- significant changes in the distribution of information;
- new ways for teaching students in academic institutions (Milošević et al., 2015; Chawinga, 2017, p. 5).

Regardless of the fact that many authors admit the educational potential of Facebook, they still do not consider it an official means of educations but only as a means for non-formal help in education through mutual communication and interaction between students (Milošević et al., 2015).

Second example of the virtual classroom application in a university environment

During the academic year 2016/2017, I applied the blended learning method to all students I teach regardless of their form of education at the University of Veliko Tarnovo.

First type of blended learning – here we blend the traditional learning environment (for students from Bachelor programmes, full-time education and extramural studies, that study the subject 'Audio-visual and information technologies in the field of education) and an asynchronous learning environment (by using the options of the 'E-student' information system)

The study course and individual work tasks are published in the 'E-teacher' information system so that students can use whenever and wherever it is convenient for them. While in lectures we discuss, present projects as digital lessons on an interactive white board, audio and video didactic means which are elaborated by students as individual tasks or in groups with or without the help of a lecturer. The motivation of students is increased because each of them is able to present himself/herself, manifest his/her creativity, compare himself/herself with colleagues from the group in order to share his/her experience, get an evaluation and recommendation by colleagues, etc.

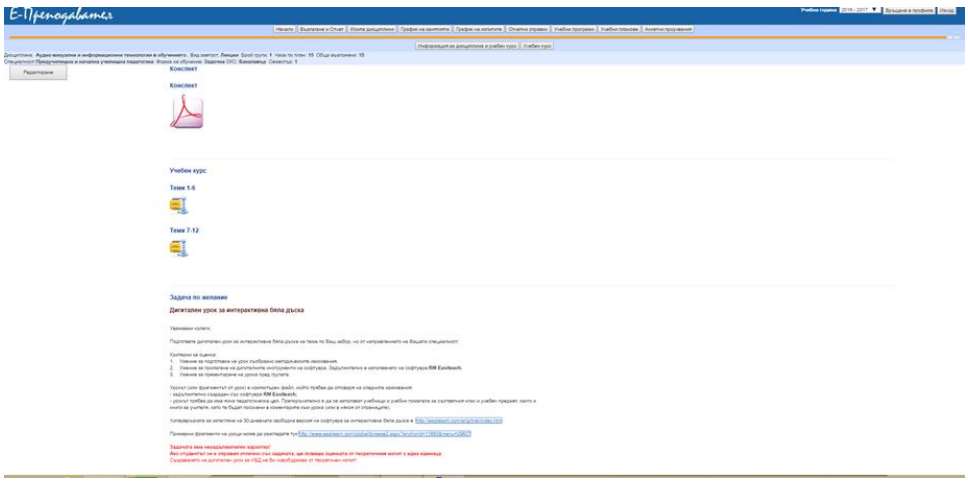

Fig. 1 The study course and individual work tasks are published in the 'E-teacher'

The *second type* – here we blend synchronous and asynchronous electronic learning environment (for students from the Master's programme of the Faculty of Pedagogy: Information and communication technologies in the distance learning form of education). The subject is called 'Pedagogy of 21st century'. The realization of an asynchronous learning environment requires the use of the internet-based distance learning platform which was specially created for the needs of Veliko Tarnovo University. Study resources are published in this system – synopsis, topics and individual work tasks. Students are able to work with this environment in a convenient time and place for them. The options of Microsoft Office 356 are used for the realization of a synchronous learning environment.

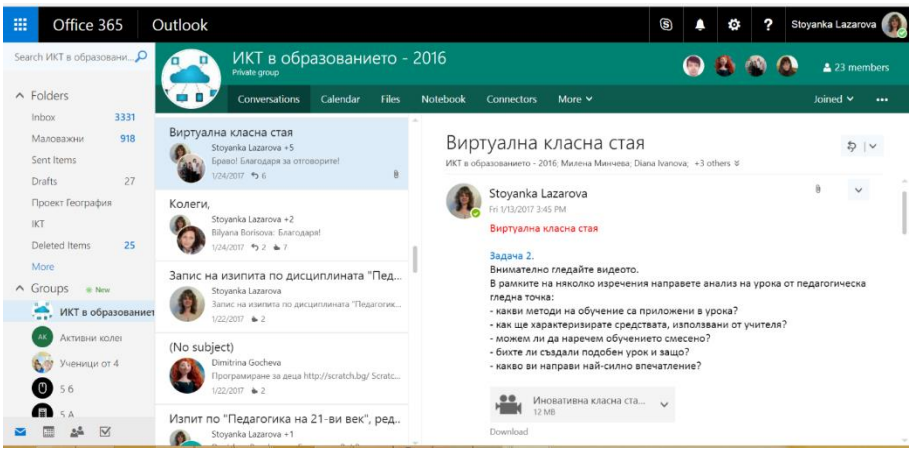

Fig. 2 Invitation for a virtual classroom

With the help of Skype for business purposes we managed to organize a virtual classroom in which we managed to realize an online communication in real time. Students presented projects created by themselves, they discussed and assessed themselves and other; they asked questions and searched for answers, etc. All of them were online at an exact hour and we were able to see and hear each other regardless of the distance between us. Students were particularly interested in this form of communication and said that it is completely satisfactory for working people like themselves.

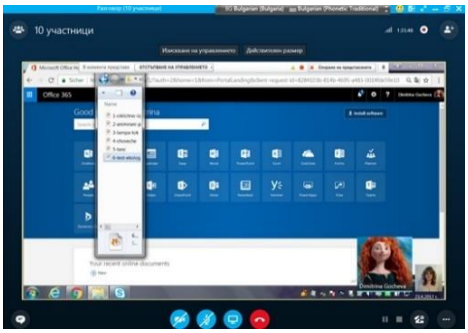

Fig. 3 Virtual environment

3.2. Second: virtual environment quality

In the past few years, the statement that technology could be a catalyst for better or harder studying rather than a cause for it has been imposed.

Numerous examples can be given to support this statement.

According to a group of Australian scientists, in the next few years multimedia technologies for collaboration will become so invisible that students and lecturers that interact between each other from different geographic areas will start feeling like they are in one and the same room (Bower et al., 2015).

3.3. Third: the degree of willingness of students and lecturers in the virtual environment

The success of blended learning not only depends on the quality of education and the virtual environment, it also depends on the degree of lecturers' and students' willingness to work in a virtual learning environment.

That is why there is a great amount of research in this field, the results from which show that lecturers choose teaching methods and means spontaneously (Benson and Kolsaker, 2015, p. 324).

Here at the University of Veliko Tarnovo we make annual research about students' opinion of their education. At the end of the winter semester of the current academic year, 99 students with distance form of education from 5 faculties were inquired. The blended course is based on attendance and non-attendance periods; attendance periods are realized within the traditional learning environment while non-attendance periods are in an asynchronous learning environment.

A large amount of inquired students (93%) have a positive attitude towards the blended course (a combination of traditional face-to-face lectures and electronic asynchronous learning in a virtual environment). In open questions, distance learning students shared that they prefer distance communication (synchronous and asynchronous) due to their impossibility to travel and attend lectures and that they are completely satisfied with the opportunity to work jointly in an online community.

An inquiry research of full-time and extramural form of education students showed their desire and willingness to get the study content in the form of electronic resources; while attendance lectures should not be presented as traditional lectures where the student is the passive recipient of knowledge and is occupied with taking notes, but rather lectures should be filled with learning activities in which theoretic knowledge is put into practice.

4. Information System 'E-university'

The rapid integration of information systems and technologies in each field of human activity characterizes contemporary society and determines its appearance. The main task of today's university is to carry out an education process and to apply the results from research activity. The contemporary university environment is characterized by intertwined complex relations between different groups of people – students, lecturers, research workers, academic board, employees, employers, and business.

Computers and information systems are rapidly integrating in each sphere of life. Information systems are exactly what the survival of companies in today's globalized world

depends on. In a sense, education has reached a new stage of development in line with information systems which are now being more and more productive, efficient, optimal and successful. Practical experience shows that despite all existing qualitative theoretical research and works as well as the widespread application of management information system patterns at the non-production field, introducing them in education (in particular – university environment) requires special attention and sets additional requirements (Selçuk Köylüoğlu et al., 2015).

4.1. Basic concepts

As the name implies, the integrated information system aims at giving an opportunity to different administrative units to share data and to communicate more effectively with one another. Simultaneously, the educational information ecosystem represents evolutionary stage of 'informatization' and 'ecologicalization' at the educational system or an 'ecological' stage of the educational information system. The educational information ecosystem is self-organized and adjusting system in which information, people and the educational information environment interact with each other and adjust themselves individually among a certain information space (Zhu et al., 2012). In our opinion, an integrated information system in the context of university environment represents a computer integrated, multidimensional and multifunctional system which provides complete coherence of formalized and operative processes, procedures and cooperation agreements in all spheres of activity in university environment so that data and information about the university such as lecturers, students, teaching activities and assessment results are shared, integrated, analyzed and distributed on regular basis for use at each level of educational hierarchy.

The success of the educational integrated information system depends on three factors:

- Timely and reliable production of data and information
- Integrating data and exchange of data between the units;
- Effective use of data and information for decision making in the field of educational policy.

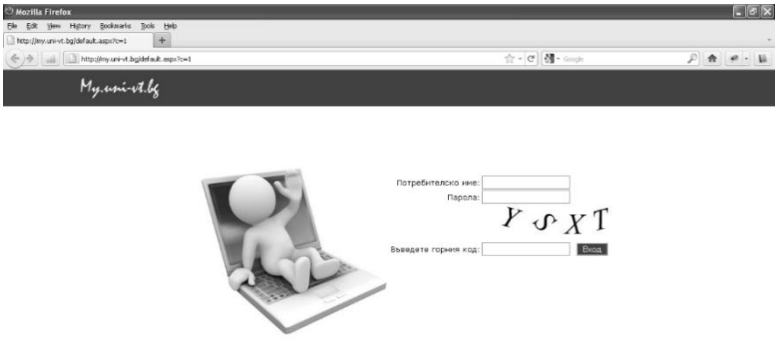

Fig. 4 The personal accounts system

4.2. 'E-University'[2] Subsystem

The access to this system is provided through the personal accounts system which can be reached at http://my.uni-vt.bg.

The access requires entering username, password and the symbols from the protection code. The 'E-University' system can only be used through its defined rights. After acknowledging the rights, the home page of the system looks like this:

Fig. 5 The 'E-University' system

The command buttons are situated at the upper end of the screen. These buttons are used for selecting the desired action.

- The 'Home' button provides access to the home page;
- The 'Selecting units' button provides access to the page for selecting units from the university structure;
- The 'References' button provides access to the reference system;
- The 'Search' button provides access to the page for global search at the university staff, students and Ph.D. students;
- The 'Help' button provides access to supporting information about the system;
- The 'Back to your account' button provides access to your personal account;
- The 'Exit' button takes you out of the system and transfers you to the public page.

Once again you will have to go through the certification process after this action is completed.

Some activities in this system are oriented to a specific unit. The unit selection is realized through the 'Unit selection' button.

[2] The information system (IS) 'E-University' is developed under project BG051PO001-3.1.08-0042 'Elaboration of management systems at St. Cyril and St. Methodius University of Veliko Tarnovo' and aims at supporting management activity.

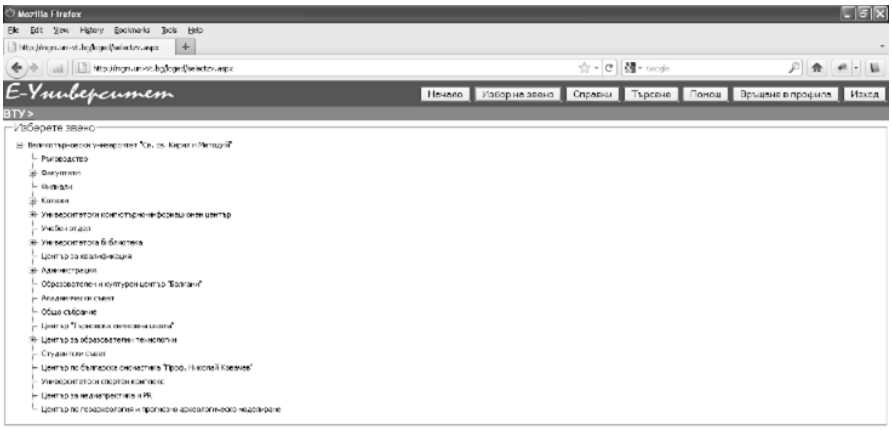

Fig. 6 The selection is realized through clicking on the name of the desired unit

The selection is realized through clicking on the name of the desired unit. Upon this, the user is redirected to a page providing information about the unit. The name of the selected unit is written at the upper end of the screen, under the logo of the 'E-University' system. Depending on the selected unit, one may access data of the unit staff or if this is a faculty, college or branch, one may access the curriculums, the students and the PhD students.

The access to all university units is restricted. This is due to the fact that the system is oriented to different levels of access. For example, the following users: Rector, Deputy Rector, Head of Student Affairs Office can select each unit while the users: Dean and Deputy Dean can only select the subunits of the Faculty they manage. When the St. Cyril and St. Methodius University of Veliko Tarnovo unit is selected from the unit list, all specialties, students, PhD students and university staff are shown. The screen photo shows this page of the Faculty of Pedagogy.

Three new buttons are displayed at the upper part of this page:

- Unit information – provides access to the page;
- Unit structure – Provides access to the page containing the unit structure;
- Students and PhD students specialties – provides access to the page containing information about specialties, curriculums, students and PhD students.

The 'Unit structure' page contains a list of the staff working at the selected unit and its subunits. The information available in this list consists of title, degree, name, father's name, surname, e-mail, unit and position. The list can be sorted by columns through clicking on the title of the column. Additional information about a specific staff member can be obtained by clicking the 'Open' button situated at the left part of the list under each staff member.

'Specialties, students and PhD students' page

A navigation bar is situated at the upper end of this page which contains boxes for selecting specialty type, form of education, specialty and year. The command buttons 'Curriculum', 'Students' and 'PhD students' are also available. It is necessary to select specialty type, form of education, specialty and year and use the 'Curriculum', 'Students' and 'PhD students' buttons afterwards.

We will examine the action of these three buttons.

'Curriculum' button – provides access to the 'Curriculum' page. The 'Curriculum' page is divided into four sections: Home page, Qualification description, Blocks and subjects, Notes. The access to these sections is realized through the respective buttons situated at the upper end.

'Students' button – provides access to the page containing a list of the students from the selected specialty and year.

Buttons for searching under faculty number or name are available at the upper end of this page. If a student who corresponds to this information is found, the line on which his name is situated is marked in a darker colour.

The list can be sorted by columns through clicking on the title of the column. The 'Open' button, situated at the beginning of each line from the list, shall be used so that all detailed information about the student is visible. When this button is used, the page containing detailed information about the student will be opened. The upper part of the page shows information about the current status of the student. The main part of the page is divided into two parts – left and right. The navigation bar is situated at the left part and it provides the following options:

- **'Specialties and students' button** – getting back to the list of students from the specialty
- **'Personal information' button** – access to the personal information page. This page is opened by default when using the 'Open' button from the list of students.
- **'Semestral examinations' button** – access to the page with subjects studied
- **'Orders' button** – access to the page containing information about orders
- **'Certified semesters' button** – access to the page containing information about certified semesters
- **'Paid fees' button** – access to the page containing information about paid fees
- **'State examinations' button** – access to the page containing information about state examinations
- **'Issued documents' button** – access to the page containing information about issued documents.

The page containing information about issued documents displays a list of documents issued to a specific student. There is an 'Open' button at the beginning of each line which gives access to detailed information about the issued document.

The staff and PhD students' information is organized in a similar way.

Now we shall get back to discussing the buttons at the upper part of the screen. The **'References'** button provides access to the reference system which contains various references for a selected unit.

The 'Search' button provides an option for global search among unit structure, students and PhD students. The screen photo shows a result from a search by the surname 'Andreev'.

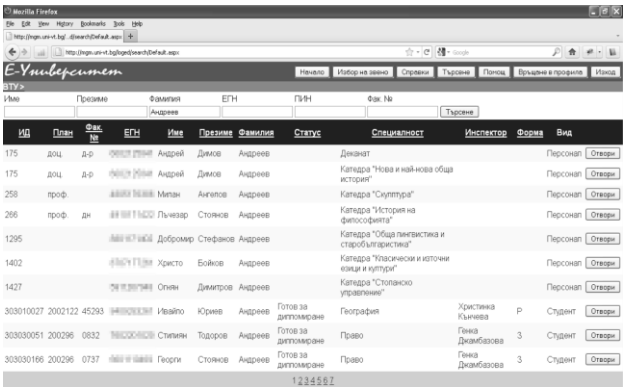

Fig. 7 The screen photo shows a result from a search by the surname ‘Andreev’

If a coincidence upon the set search criteria is found in the list, all people corresponding to the set criteria will be displayed.

Detailed information about everyone included in the list can be examined. It is necessary to use the ‘Open’ button situated at the right end of the table against each name. Depending on the category to which the specific person belongs, a redirection to information about staff, a student or a PhD student shall be made. It is possible that the user may not be entitled to examine detailed information in accordance with the set levels of access.

5. CONCLUSION

The suggested integrated management information system is an attempt for comprehensive solution to specific issues of the contemporary university environment related to intertwine complex relations between different groups of people – students, lecturers, research workers, academic board, employees, employers, and business. The carried out research has a certain contribution to the theory and practice of Pedagogy in the field of information systems for education management.

The methodology developed by the author complies with the contemporary trends in the field of information systems in modern education. The developed model may be put into practice at the management of various activities at St. Cyril and St. Methodius University of Veliko Tarnovo.

On the base of own experience and the research that we analyzed, we could say that the application of blended forms of learning is an innovative teaching and training approach which guarantees independence on time and place; there is an opportunity to use different media, individualize the learning process, opportunity to use different styles of learning, organizing joint learning activities.

The successful application of this approach together with the organization of education and the quality of the virtual environment require the presence of the human factor which is really significant here – namely the presence of a lecturer who is able to combine different types of learning environments in order to provoke his/her students to perform various types of activities and develop their potential abilities and talents in the future.

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PRIMENA KURSEVA MEŠOVITOG UČENJA ZA OBRAZOVANJE NA SAVREMENOM UNIVERZITETU. INFORMACIONI SISTEM ‘E-UNIVERZITET’ NA UNIVERZITETU U VELIKOM TRNOVU, BUGARSKA

U poslednjih nekoliko godina, mešovito učenje se sve brže širi na polju obrazovanja širom sveta. Ideja kombinovanog učenja deluje privlačno jer omogućava očuvanje tradicionalnih oblika obrazovanja koji proističu iz vekovima akumuliranog pedagoškog iskustva kroz korišćenje različitih obrazovnih funkcija novih tehnologija. U radu je predstavljena metodologija razvijena od strane autora koja predstavlja ključni podsistem integrisanog informacionog sistema upravljanja Univerziteta u Velikom Trnovu, pod nazivom "E – Univerzitet" podsistem. Na osnovu analize dosadašnjih istraživanja i sopstvenog iskustva, predstavljene su mogućnosti korišćenja različitih medija u cilju individualizacije procesa učenja, korišćenja različitih stilova učenja, organizovanja aktivnosti grupnog učenja. Uspešna primena ovog pristupa, zajedno sa organizacijom obrazovanja i kvalitetnim virtuelnim okruženjem zahteva prisustvo ljudskog faktora koji je sposoban da kombinuje različite tipove okruženja za učenje kako bi provocirao studente da obavljaju različite tipove aktivnosti i razvijaju potencijalne sposobnosti i talente u budućnosti.

Ključne reči: *mešovito učenje, E-Univerzitet, organizacija obrazovanja, univerzitetski informacioni sistem*