The Organization of Students' Joint Activity by Means of Popular Network Services

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Abstract. The article presents the results of particularly popular network services, introduction VKontakte and GoogleDocs, in the educational process and the organization of students' joint activity. This integration of the network services with the learning technologies changes the forms of educational activity organization, which should be focused on the modern skills formation, the skills of the XXI century.

The paper presents the results of the survey, of "Primary education" specialty students, in the use of networks services in learning activities and daily life; analyses the experience of networks services application in educational process in University. The results of statistical analysis of the pedagogical experiment on implementation of social network VKontakte and web-servise GoogleDocs in the educational process are conducts.

Keywords: networks services, e-learning, network technologies, google documents, XXI century skills, IC technologies

Keyterms: TeachingProcess, InformationCommunicationTechnology, Web-Service

1 Introduction

The main goal of modernization in the sector of education in the world is the achievement of new quality of learning process that would correspond to new socio-economic conditions. This requires effective organization of the educational process, which will facilitate the search and development of abilities in each student. The result of the work of the teacher should be active, creative, cognitive organization of joint activity of students.

Also important is the development of students' skills of the XXI century, which would be useful in their future professional activity, where the latter requires the ability to work not only with information but also people. This can be communication skills and collaboration skills, flexibility and adaptability, use to achieve the objectives of the aggregate intelligence of the group, which is a joint activity. According to

O. Pinchuk, society puts new demands forward for the young people, such as to be able to cooperate, to work effectively both individually and in a team, to find joint solutions, to resolve conflicts on the basis of the coordination of positions and consideration of interests, to formulate, substantiate and defend their own opinions [1].

Due to above reasons, it is necessary to develop students' skills of collaboration, teamwork, mutual support in the team through the use of modern information technologies. This approach declared in the Strategy of Information Society Development in Ukraine for 2013-2020 [2], the National Strategy of Education Development in Ukraine for the period up to 2021 (from 25.06.2013 № 344/2013) [3] and the Law on Higher Education [4].

Current state of ICT in the educational process requires the use of advanced information and communication technology and modern means of Internet access, such as: educational platforms, open learning systems, online courses and distance education platform based on cloud technologies, social networks, etc. These information technologies are appropriate in the vast majority of aspects of teaching activities (from teaching a particular discipline to implementation in educational institution management). These digital technologies are a driving force for socio-economic development of the country and a basis for its sustainable development in the future.

In the modern world becoming more and more popular the use of social networks in education. The Internet itself is becoming a great resource and information site in which resolved new pedagogical problems and implemented new forms of learning.

A. Onishchenko treats a social network as [5] "technological systems of the organization and management of electronic information exchange between subjects of social relations, designed to provide horizontal communication between subscribers united by common interests, informational needs and communication skills". The value of social networks depends not only on the content that is transmitted via the network to the users. With the development of services Web 2.0 the value of official content drops significantly, and users are more attracted to online services that reflect additional opportunities of collective communication and collaboration. These features in addition to learn define the concept of social learning [6].

2 Definition of Previously Unsolved Parts of General Problem Which the Article is Dedicated to

V. Bykov in work "Innovative tools and promising areas of education informatization" [7] examines innovative ICT-based pedagogical and educational technology, especially focuses on Internet technologies.

Scientist identify several types of such technologies, but we focus those which are more relevant for our study: Twitter-technology (provides instant exchange of short text messages); Blog-technology (support small web site that contains an electronic diary of user); Wiki technology (designed for collaborative development, storage, structuring of text, files, and multimedia); ICT support of electronic social networks.

"Electronic social network" author characterizes as multiplayer interactive Web site, where content is filled by members of the network. The Web site is an automated

social environment that provides electronic communication, not limited in time and space for a specific group of users united by any general ideas.

A significant contribution into research of social services' use in the educational process was made by such scientists: Balyk N. [8], Patarakin Ie. [9], Starodubtsev V. [10], Meniakina M. [11], Yatsyshyn A. [12] and others.

The possibility of social networks and cloud-based technologies application in educational process researched by foreign scholars Levkyn H., Krechetnikova I., Parabina A., Pustovoi T., Feshchenko A. [13], R. Berger, A. Nijholt, V. Kumar, M. Armbrust, K. Subramanian etc.

Summing up the possibility of using social media in education, Zaidieh A.J.Y. concluded «adding interactive side with a human, and make the participation of the human element in the educational process something important. That led to an increase to attract people toward e-learning and some of researcher in the field of social sciences carrying out studies to examine this phenomenon and to clarify the reason behind the attraction educated about social network sites…» [14]

The main goal of collaborative learning is the awakening of the inner forces and abilities of students, the use of all available opportunities of children to fully develop their personality. This approach shapes a child's positive self-concept that contributes to the further development and self-actualization, a positive view of their identity [15]. The skills of cooperation is a strategic task of modernization of the modern educational process, it takes time and requires special skills from all participants of the educational process, especially in the integration of information and communication technologies in the educational process [16].

In recent years, social networks have become increasingly popular, it has become an integral part of every member of society and continue to develop intensively and rapidly increase user mass. Currently, there are more than 1.6 billion network services users; it is more than 64% of users with access to the Internet service. Among the famous most popular are Facebook and WhatsApp [17]. Fig.1 shows the numerical values of the number of accounts.

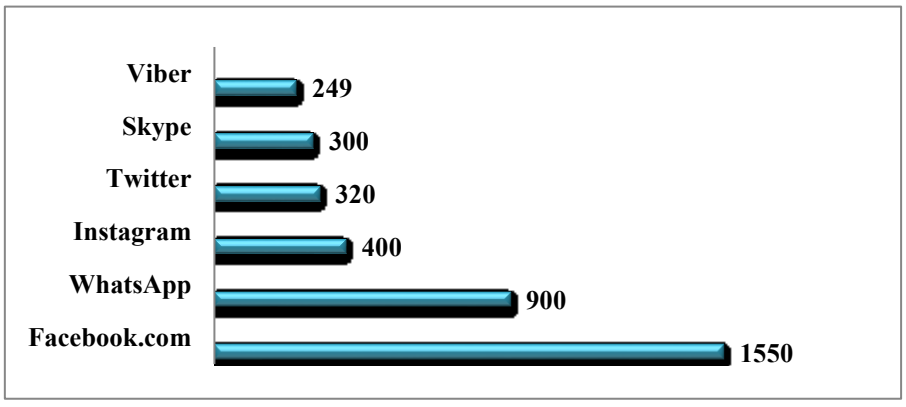

Fig. 1. The number of social media accounts (in millions)

Social networks are equally popular in Ukraine. According to the research of Gemius company, online audience of Internet users is 20.1 million [18]. 18.4 million of people use laptop or computer, 5.1 million use mobile phone or smart phone, 1.8 million use tablet. The most popular sites are google.com (64%), VKontakte.com (59%), youtube.com (57%) and mail.ru (54%), according to monthly research conducted by Factum Group Company [19]. Ukrainians have reduced the interest in social networks, comparing to the % of attendance in October and December of 2015, VKontakte.com decreased by 6%, odnoklassniki.com decreased by 5%, facebook.com decreased by 2% (see Fig. 2). But at January of 2016, the number of Ukrainian users in the social network Facebook increased by 30% over the past year, in absolute terms the growth amounted to 1.2 million. In January, 2015 in Ukraine was 3.85 million users of Facebook, in January 2016 this figure amounted to 5 million [20].

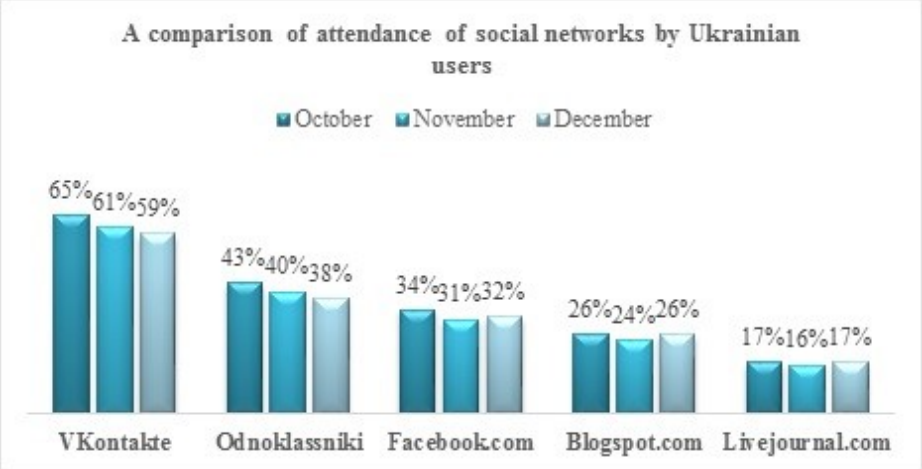

Fig. 2. A comparison of attendance of social networks by Ukrainian users

The use of social networks can provide interactivity, can affect positively on results of students' cognitive activity in educational process, and also can be effective means of improving the motivation and quality of education, the organization of students' team work, joint project activities, and the individualization of virtual educational space of student. Also social networks can be used as the vehicle for the dissemination of educational material.

Feshchenko A. [13] in his work has put forward a number of advantages relative to the use of social networking tools in educational activities, here are some of them:

1. The popularity of social networks among young people aged 16 to 21.
2. Using social networks, students acquire the XXI century skills.
3. Constant interaction in the network between students and teachers, which ensures continuity of the educational process.
4. Interactive mode of teaching.
5. Joint creation and improvement of learning content.

6. On-line support of educational process by students who were absent in class.

Researchers from the Education Fund of Great Britain put forward recommendations on the use of Facebook in the learning process. They argue that social networks are driving educational tool to support the learning process, presentation of teaching material, organizing extracurricular activities and setting up the communication process between students [22].

According to a study conducted by researchers from the University of Iowa, it has been proven that the use of American social network Facebook by students, increase their academic achievement [21].

Nancy E. Willard, in his article seeks to address the problem of students in middle and high school using social networks. It highlights three main problems when using social networks, namely, «Legitimate concerns do exist about youth involvement on these sites, however. Those concerns are grounded in three basic factors: 1) The sites are attracting many teens, some of whom are not making good choices. 2) Many parents are not paying attention to what their children are posting on the sites. 3) Sexual predators - and likely other dangerous strangers - attracted to places where teens are not making good choices and adults are not paying attention» [23].

In work «Social Networking and Education: Using Facebook as an Edusocial Space» Pollara, P. & Zhu, J. reviewed the experience of using Facebook for teaching science as a discipline in high school. There is a positive impact of social networks as the students and the teachers [24].

The scientific-methodical literature contains an insufficient case study about principles of social networks use in students' teamwork for the organization of the educational process. Also, need to develop a general model of organization of the educational model with the use of social networks.

The aim of our article is the presentation of results using popular network services in the educational process of students in conditions of education informatization.

Tasks for solution include:

- identify opportunities for the use of popular network services in teaching students;
- formulate pedagogical conditions of students' joint activity organization in virtual educational environment applying network services;
- present the results of the experiment on social networks introduction in educational process.

3 The Organization of Students' Joint Activity by Means of Popular Network Services and Google Documents.

As already stated above, the effective network services for the organization of students' joint activity can be Web 2.0 services like Google Documents and social networks that allow students to work together, edit learning materials for the job, and allow teacher to see and analyze the contribution of each participant in creation of joint product.

To begin, we conducted a sociological survey "The use of social networks in everyday and educational activity" (https://docs.google.com/a/kubg.edu.ua/forms/d/1hPmihIVjs5qE1UgcmfLEjU9ZjN3zKN3uFNzaaAC8w9g/closedform) among 250 first-year students (17-18 years) of specialty "Primary education". The survey was intended to investigate that students have constant access to the Internet, and where and how they use it.

The results indicate that most students have constant access to the Internet (92%), 88% use it at home, and only 4% do not have access to the network. 52% of respondents use smartphones, 41% use laptops. 32% of respondents are on social networks more than 3 hours per day, and 29% more than 6 hours per day, i.e. they spend more time in networks than half of daylight hours. While 37% believe that using social networks does not effect on their success and 33% believe that it even helps in their studies and it is an effective mean for getting quick advice (39%).

The majority of students use social network "VKontakte.com", namely 43%, 19% use "Instagram", the other part use "Skype" and "Twitter" (see Fig. 3).

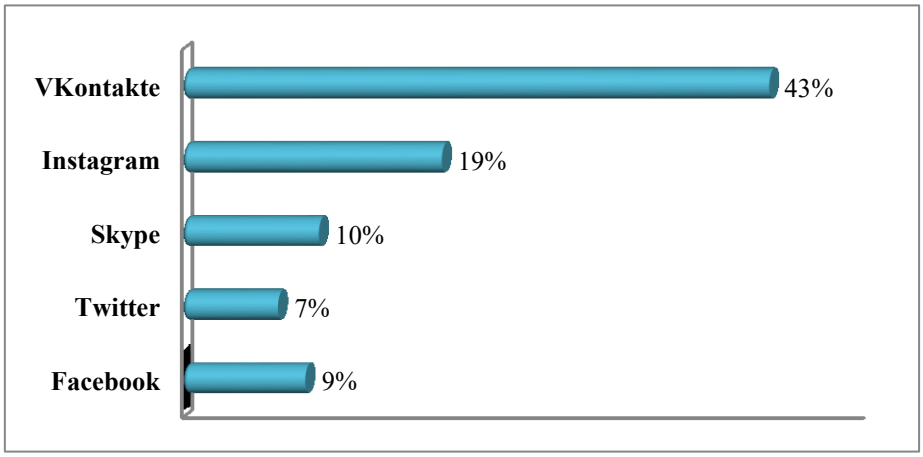

Fig. 3. Chart of social networks use by first year students of the specialty "Primary education"

Also the results of the survey showed that more than 54% of students use social networks for communication, music listening and movie watching, 15% for self-fulfillment, participation in social projects and job search. Thus, students are trying to use social networks to demonstrate personal position on the discussed issues, their own achievements, development or creativity.

18% have tried to use social networks for learning. Students support the view that social networks are better to use for online access to teaching materials, communication with the teacher and collective homework, conducting lessons in remote mode and independent filling with learning content. For this purpose, in their view, more suitable networks are "VKontakte", "Facebook", blog-platform "LiveJournal" and the program "Skype". This suggests that social networks are an effective platform for the development of e-learning. In the content of social networks is the large number of instructional videos that any network users can subscribe to. In addition there is ac-

cess to lectures and training material at any time of the day that allows you to study at your own pace.

Analyzing the survey data, we decided to introduce a social network "VKontakte" in the educational process at Borys Grinchenko Kyiv University in the group of students of the specialty "Primary education". Since educational activity of students was conducted through virtual learning environment Moodle, which are designed course on the subject for the experimental group, we have created a separate group of "Specialized practical of informatics», http://vk.com/club102688255, used as an extra to the classroom forms of interaction studies students and teachers. This combination proved effective in terms of student work and the formation of their self-skills, interaction and cooperation. This public was created specially, where were added lectures and laboratory works, was created a conversation on the theme-defined tasks, where students together with the teacher communicated and explained the individual aspects of the problem, put forward the idea of modernization of training process, etc.

According to Bykov V., the role of teacher was changed; he went from being a repeater of knowledge to co-creator of modern learning technologies [25].

During the training sessions on the subject "Practical training session on computer science", trying to combine the familiar teaching methods and popular network services, for students was pre-provided access to electronic learning materials with selected themes (video, photographs, documents and other materials) (http://e-learning.kubg.edu.ua/course/view.php?id=2491). Students worked through the data, and then directly at the lesson was the discussion of problem questions, clarify unclear (ambiguous) material. Convenient was that commenting on the record, you can also add photos (eg photos from the screen if there is a problem when performing laboratory work), video (eg recording step of laboratory work or perform control work), recording or document (file performed the laboratory work) contained on the computer.

Also as part of this work, GoogleApps services were used in parallel. Students cooperated together to perform the tasks, conducted research, guided by the model, which was proposed by D. Bodnenko [26] (with the implementation of individual educational-research tasks, students attracted to joint discussion their classmates and teachers who added comments and criticism; with the help of calendar were planned joint group activities; creating questionnaires, conducted social surveys and studied to analyze the results), and all of that has developed a sense of team and support (collaboration).

The main role of the teacher in the process - overall coordination, consultation and assessment results. This form of learning requires him considerable organizational activity, requires appropriate efforts to build the structure of the course, formulate specific lessons clearly and to diagnose problems that arise during the joint work of students.

I would like to draw your attention to the results of the statistical analysis of the experiment implementation of the educational topic “Technology of the creation of materials for future specialist’s organizational activities by means of spreadsheets” in the teaching process. Through heuristic conversation (such technologies as Smart Board, Google Docs were used for a quiz) held during the lecture more efficient

means of presentation of the educational material was defined. For the *control group* (60 people) material was presented for the individual learning of the topic in the Moodle system; for the *experimental group* (72 people) the support of the educational process via social network "VKontakte" was made in addition to materials in the Moodle system. According to the results of the final test of the control and experimental groups' participants on the described topic, obtained data showed the following result after verification of the statistical hypotheses using Student's t-test: $5{,}11 = t_{емп} > t_{кр}(0{,}01; 63) = 2{,}66$ at the significance level $\alpha = 0{,}01$. It means that the null hypothesis of no difference between the average result of tests solving in both groups at the 0.01 significance level deviates. Thus, we can talk about the different level of solving tests on the topic "Technology of the creation of materials for future specialist's organizational activities by means of spreadsheets" by students from the control and experimental groups. In particular, the difference lay in the fact that the level of mastery of the educational material by the students having used the social network "VKontakte" and web-servise GogleDocs had higher results (Fig. 4).

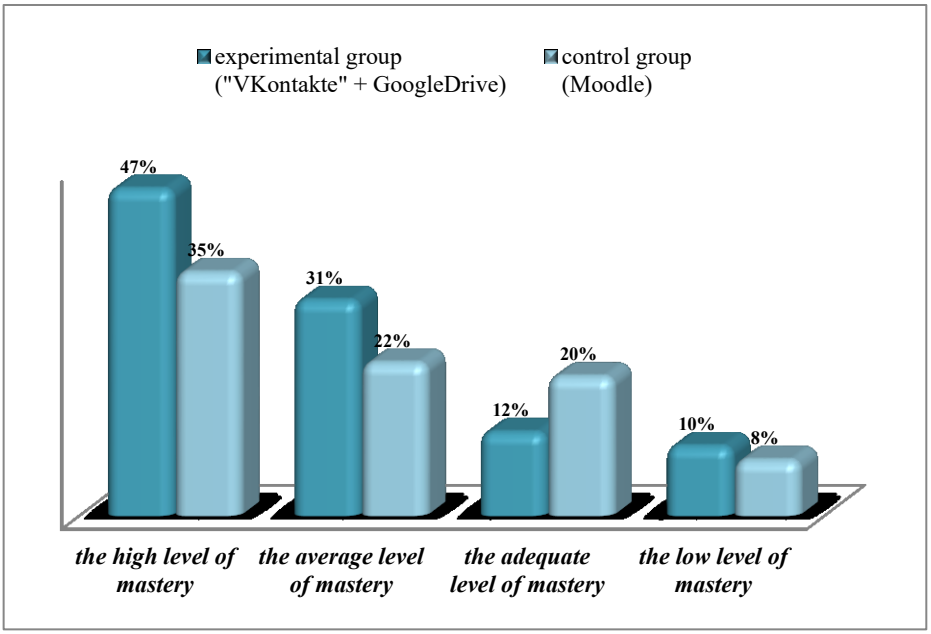

Fig. 4. Level of mastery of the educational material by students studying the specialty "Elementary education" at Borys Grinchenko Kyiv University

Providing learning activities of students, we have come to the conclusion that social networks can be used for the following tasks:

– to organize collective work of students in class and outside of the classroom, which promoting collaboration and the acquisition of experience of working in a team;

- to widen the students' training at home, because social networks allow you to use the learning content, which is not limited to temporal, geographical and age limits;
- to ensure the development of the personalized learning environment of student, the creation of its curriculum and educational content of disciplines. If students together with the teacher create learning content of the discipline, it will be adapted individually for each student;
- to promote the independent learning of students (implementation of research-based teaching principles);
- to promote individual learning of students, because each student is required to work at their own pace;
- to carry out informal communication between teacher and student;
- to realize the principles of lifelong learning; Students will be able to visit the discipline page at any time of the day, upload requisite material, send made job, study online without any cost, and receive continued support from the teacher [27].

4 Conclusions

The implementation of network services in the learning process, in addition to the skills of cooperation, encourages independent cognitive activities of students, reduces the production cycle of obtaining a specific intellectual or creative result, develops critical thinking and provides a high level of student-student and student-teacher interactions. The educational activity is not limited to the classroom environment, but goes beyond it and provides the continuity of the educational process.

According to the results of the experiment on use of network services in the learning process was proved the effectiveness of networking tools implementation, which provided by social networks for the organization of the educational process. This confirms the authors' hypothesis that use of popular network services as an additional pedagogical tool will contribute to the culture communication formation of students in a virtual environment; the development of communicative competence and can be effective means of enhancing the cognitive and educational research activity of students and development of the XXI century skills.

Statistical analysis of the experiment results (using t-criterion of Student), which was implemented in teaching educational subjects, showed that the level of the material mastering by students, who have used a social network "Vkontakte" and web-servise GoogleDocs had the highest result.

References

1. Pinchuk O.P.: Historical and analytical review of social networking technologies and prospects of their use in training. Information Technologies and Learning Tools, 48(4), pp. 14-34, (2015) (in Ukrainian)
2. Strategy for Information Society Development in Ukraine, http://zakon2.rada.gov.ua/laws/show/386-2013-p#n8 (in Ukrainian)

3. The National Strategy for the Development of Education in Ukraine until 2021, http://zakon4.rada.gov.ua/laws/show/344/2013. (in Ukrainian)
4. The Law of Ukraine "On higher education" from 01.07.2014 number 1556-VII, http://zakon4.rada.gov.ua/laws/show/1556-18 (in Ukrainian)
5. Onyshchenko O. S., Horovyi V. M., Popyk V. I.: Social media as a factor in the development of civil society, NAS of Ukraine, Vernadsky Nat. Library of Ukraine, http://nbuviap.gov.ua/images/nauk-mon/k2013.pdf (2013) (in Ukrainian)
6. Arxypova T. L., Osypova N. V., L'vov M. S. : Social networks as a means of organization educational process, Information Technologies in Education 22, pp.7-18 (2015) (in Ukrainian)
7. Bykov V.Yu.: Innovative tools and perspective directions of informatization of education, In: Proc. of III International Scientific Conference “Informatsiino-komunikatsiini tekhnolohii v suchasnii osviti: dosvid, problemy, perspektyvy”, November 12th-14th, pp. 14-26., http://lib.iitta.gov.ua/1178 (2012) (in Ukrainian)
8. Balyk N.: Use WEB 2.0 social services in university and postgraduate teacher education in computer science, In: Naukovi zapysky Ternopilskoho natsionalnoho pedahohichnoho universytetu imeni Volodymyra Hnatiuka. Ser. Pedahohika 7, pp. 88-90 (2008) (in Ukrainian)
9. Patarakyn E.D.: Social interaction and online learning 2.0, NCP “Modern technologies in education and culture”, Moscow (2009) (in Russian)
10. Kyseleva A.A.: Features web2 services for the formation of personal educational spheres, Vysshee obrazovanie v Rossii 7, pp.95-98 (2010) (in Russian)
11. Meniakina, M. S.: Teaching opportunities of Web 2.0 services, Kompiuter u shkoli ta simi 8, pp.24-26 (2009) (in Ukrainian)
12. Yatsyshyn A.V.: The use of virtual social networks for the purpose of secondary education, Information Technologies in Education 19, pp.119-126 (2014) (in Ukrainian)
13. Feshhenko A. V.: Social networks in education: analysis of the experience and perspectives of development, Otkrytoe i distancionnoe obrazovanie 3, pp.44-50 (2011) (in Russian)
14. Zaidieh A.J.Y. The Use of Social Networking in Education: Challenges and Opportunities. World of Computer Science and Information Technology Journal. 2012. Vol. 2, No. 1, 18 – 21. ISSN: 2221 – 0741 (in English)
15. Cooperation in Education, http://www.pedagogika fine.ru/pedagogs-958-1.html (in Ukrainian)
16. Morze N. V., Varchenko-Trotsenko L. A.: Formation of the cooperation skills of students using Web 2.0 services, Obrazovatel'nye tehnologii i obshhestvo 17 (2014) (in Russian)
17. Leading social networks worldwide as of January 2016, ranked by number of active users (in millions), http://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/ (in Ukrainian)
18. Every 4th Ukrainian Internet user goes to the Web via mobile phone, http://watcher.com.ua/2016/01/22/kozhen-4-y-ukrayinskyy-korystuvach-internetu-vyhodyt-u-veb-cherez-mobilnyy-telefon/ (in Ukrainian)

19. Mail.ru regained the 4th position among the most popular sites used by Ukrainian, http://watcher.com.ua/2016/01/20/mail-ru-povernuv-sobi-4-tu-pozytsiyu-sered-naypopulyarnishyh-saytiv-yakymy-korystuyutsya-ukrayintsi/ (in Ukrainian)
20. Ukrainian audience of Facebook for the year increased by 30%, and first reached 5 million users, http://watcher.com.ua/2016/01/25/ukrayinska-audytoriya-facebook-za-rik-vyrosla-na-30-i-vpershe-dosyahla-5-mln-korystuvachiv/. (in Ukrainian)
21. Facebook improves student performance – scientists, http://news.com.ua/nayka/yspishnist_stydentiv_zlegut_vid_spilkyvannja_v_facebook_02088.html (in Ukrainian)
22. Facebook guide for educators : A tool for teaching and learning // The Education Foundation. – London, 2013: http://www.ednfoundation.org/wp-content/uploads/Facebookguideforeducators. (in English)
23. Willard N. Schools and Online Social Networking: http://www.educationworld.com/a_issues/issues/issues423.shtml (in English)
24. Pollara, P. & Zhu, J. (2011). Social Networking and Education: Using Facebook as an Edusocial Space. In Proceedings of Society for Information Technology & Teacher Education International Conference 2011 (pp. 3330-3338). Chesapeake, VA: AACE.: http://www.academia.edu/394232/.]. (in English)
25. Bykov V.Yu.: Current task informatization of education, Information Technologies and Learning Tools. 1 (15), http://www.nbuv.gov.ua/e-journals/ITZN/em15/emg.html. (in Ukrainian)
26. Bodnenko D.M.: Cloud oriented technologies as a factor of research-based training, Information Technologies and Learning Tools. 48 (4), pp. 122--139 (2015) (in Ukrainian)
27. Kuchakovska H. A.: The role of social networks for the activization the learning process of informatics future primary school teachers, 3(47), pp. 136-149 (2015) (in Ukrainian)