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# CUADERNOS DE SOFÍA EDITORIAL

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#### SOCIAL NETWORKS AND EDUCATION: THE INCREASE IN STUDENT LEARNING EFFICIENCY AND THE SEARCH FOR MEANS OF CONTROL

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#### Abstract

The total informatization of a society leads to the wide popularization of social networks. A growing number of people in the world can use social networks with any device, which simplifies and improves the process of online communication. Social networks provide an opportunity for free, cheap, simple, and direct contact with the student audience. They help enter discussions, explore new topics, acquire and maintain new knowledge and skills, assess one's work and the work of one's colleagues, and think critically. The article considers the features of social networks and analyzes their capabilities (main advantages) in student education. The analysis of possibilities and readiness of university professors and students to involve social networks in the educational process is carried out. A SWOT-analysis of the involvement of social networks in the educational process is given. The benefits and limitations of IT in the educational process for different categories of users are considered. Tools and examples of using social networks are presented. The article also considers the ways of organizing control and analysis of student progress using social services and networks.

#### **Keywords**

Social network - Internet - Media education - Students - Professors - Learning process

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#### Introduction

The search for new models of organizing the educational activity of modern students is a priority for researchers in the field of pedagogics<sup>1</sup>. When teaching a future well-educated, highly-qualified, and competitive specialist, one should consider the fact that a student should not only "learn to learn", but also correctly use the knowledge received at university.

Nowadays it is impossible to imagine a student who would not use the Internet at least once a day. The numerous developed social networks not only allow finding simple and effective ways of self-actualization but also significantly accelerate business processes and influence public consciousness and politics<sup>2</sup>. Social networks are focused on different target audiences. For example, different preferences are distinguished among the Russian audience. Young people of school and university age are more interested in the Vkontakte network. For older users, the Russian social network Odnoklassniki is more preferable. For the middle-aged audience, university environment, and business, Facebook is more interesting<sup>3</sup>.

The use of social networks in the educational process is considered in various aspects: social networks as a means of organizing the educational process<sup>4</sup>, the use of social networks in the process of higher education<sup>5</sup>, psychological and pedagogical features of the use of social networks in learning<sup>6</sup>, media education and its connection with the

<sup>&</sup>lt;sup>1</sup> E. Kryukova; N. Bodneva; T. Sribnaya; N. Filimonova y O. Vershinina, "The Development of the Restaurant Business in Russia", Journal of Environmental Management and Tourism Vol: 10 num 2 (2019): 412-419 y G. E. Adygezalova; R. M. Allalyev; A. V. Kiseleva y N. A. Grigorieva, "Copyright Violation and Distribution of Prohibited Content on the Internet: Analysis of Legal Arrangements in the Legislation of the Russian Federation", Journal of Advanced Research in Law and Economics Vol: 9 num 1 (2018): 6-14.

<sup>&</sup>lt;sup>2</sup> M. S. Chvanova et al., "Razvitie sotsialnykh setei i ikh integratsiya v sistemu obrazovaniya", Obrazovatelnye tekhnologii i obshchestvo Vol: 3 num 17 (2014): 472-493; I. V. Hristoforova; L. V. Silcheva; T. N. Arkhipova; A. B. Demenkova y E. Yu. Nikolskaya, "Improvement of Digital Technologies in Marketing Communications of Tourism and Hospitality Enterprises", Journal of Environmental Management and Tourism Vol: 10 num 4 (2019): 829-834 y V. Vasyukov; O. Efremova; A. Balashova y G. Gasparyan, "Action Plan for Using Digital Evidences When Investigating Drug Marketing via the Internet, Instant Messengers and Crypto markets", Journal of Advanced Research in Dynamical and Control Systems Vol: 11 num 8 (2019): 2517-2524.

<sup>&</sup>lt;sup>3</sup> O. A. Klimenko, Sotsialnye seti kak sredstvo obucheniya i vzaimodeistviya uchastnikov obrazovatelnogo protsessa. In Teoriya i praktika obrazovaniya v sovremennom mire (pp. 405-407). (Saint Petersburg: Renome, 2012).

<sup>&</sup>lt;sup>4</sup> M. Tower; S. Latimer y J. Hewitt, "Social networking as a learning tool Nursing students' perception of efficacy", Nurse Education Today num 34 (2014): 1012-1017 y R. Gray; J. Vitak; E. W. Easton y N. Ellison, "Examining social adjustment to college in the age of social media Factors influencing successful transitions and persistence", Computers & Education num 67 (2013): 193–207.

<sup>&</sup>lt;sup>5</sup> M. Everson; E. Gundlach y J. Miller, "Social media and the introductory statistics course", Computers in Human Behavior num 29 (2013): 69–81 y P. M. Cuellar; M. Delgado y C. M. Pegalajar, "Improving learning management through semantic web and social networks", Expert Systems with Applications num 38 (2011): 4181–4189.

<sup>&</sup>lt;sup>6</sup> P. Tess, "The role of social media in higher education classes (real and virtual) — A literature review", Computers in Human Behavior num 29 (2013): 60–68; S. K. Sharma; A. Joshi y H. Sharma, "A multi-analytical approach to predict the Facebook usage in higher education", Computers in Human Behavior num 55 (2016): 340–353 y P. T. Alloway; J. Horton; G. R. Alloway y C. Dawson, "Social networking sites and cognitive abilities. Do they make you smarter?", Computers & Education num 63 (2013): 10–16.

learning process<sup>7</sup>, the definition of the role of virtual networks in the formation of information and communication competence of students<sup>8</sup>, and the integration of networked learning tools in the educational process<sup>9</sup>.

In the studies by Ya.Ya. Klementovichus and I.A. Nagaeva<sup>10</sup>, the ways of using network tools for organization and IT support of educational and cognitive activities are outlined. The scientific study by E.V. Ospennikova and I.V. Yakovleva<sup>11</sup> justifies the models of using network services with the indication of their main characteristic features.

The research of C. Cheung, P. Chiu, and M. Lee<sup>12</sup> reveals the reasons why students use social networks in the educational process. M. Kabilan, N. Ahmad, and M.J. Abidin<sup>13</sup> empirically investigate the use of Facebook in the educational process. S. Sarapin and P. Morris<sup>14</sup> identify ways to improve online social communications in the "professor-student" system.

Several researchers and statistical centres have carried out statistical research on the quality of education with the use of social media. It is worth emphasizing the study of American scientists from the University of Illinois, which proves that social networks play a significant role in the adaptation of first-year students, as they help to feel involved in university life<sup>15</sup>. Another study of American statisticians proves that part-time students-freshmen who actively use information and communication technologies and social networks are more successful in their studies than their full-time colleagues<sup>16</sup>. The objective of the article is to analyze the possibilities of social networks in improving the efficiency of student education.

The hypothesis of the research: the use of social networks in the educational process in a higher education institution, including as a means of knowledge management, contributes to the improvement of student learning efficiency.

<sup>&</sup>lt;sup>7</sup> L. Rosen; M. L. Carrier y N. Cheever, "Facebook and texting made me do it: Media-induced taskswitching while studying", Computers in Human Behavior num 29 (2013): 948–958.

<sup>&</sup>lt;sup>8</sup> A. A. Temerbekova, Sotsialnye seti v obrazovatelnom protsesse kak resurs formirovaniya IKTkompetentnosti lichnosti (Gorno- Altaisk: RIO GAGU, 2016).

<sup>&</sup>lt;sup>9</sup> I. Hussain, "A Study to Evaluate the Social Media Trends among University Students". The Procedia — Social and Behavioral Sciences num 64 (2012): 639–645.

<sup>&</sup>lt;sup>10</sup> Ya. Ya. Klementovichus, et al. Genezis, tendentsii i problemy razvitiya setevykh obrazovatelnykh (Saint Petersburg: Izd-vo SPbGEU, 2016) y I. A. Nagaeva, Setevoe obuchenie: stanovlenie i perspektivy razvitiya", Nauchnoe obespechenie sistemy povysheniya kvalifikatsii kadrov Vol: 3-4 num 16-17 (2013): 31-37.

<sup>&</sup>lt;sup>11</sup> E. V. Ospennikova y I. V. Yakovleva, "Modeli primeneniya setevykh sotsialnykh servisov v obuchenii", Pedagogicheskoe obrazovanie v Rossii num 5 (2013): 46-51.

<sup>&</sup>lt;sup>12</sup> C. Cheung; P. Chiu y M. Lee, "Online social networks Why do students use facebook", Computers in Human Behavior num 27 (2011): 1337–1343.

<sup>&</sup>lt;sup>13</sup> M. Kabilan; N. Ahmad y M. Abidin, "Facebook: An online environment for learning of English in institutions of higher education", The Internet and Higher Education num 13 (2010): 179–187.

<sup>&</sup>lt;sup>14</sup> S. Sarapin y P. Morris, "Faculty and Facebook friending: Instructor–student online social communication from the professor's perspective", The Internet and Higher Education num 27 (2015): 14–23.

<sup>&</sup>lt;sup>15</sup> S. Ainin; M. M. Naqshbandi; S. Moghavvemi y N. I. Jaafar, "Facebook usage, socialization and academic performance", Computers & Education num 83 (2015): 64–78.

<sup>&</sup>lt;sup>16</sup> P. A. Kirschner y A. C. Karpinski, "Facebook and academic performance", Computers in Human Behavior **num** 26 (2010): 1237–1245.

According to the research results, it can be concluded that the objective set in the research was achieved.

#### Methods

In the research, the following methods were applied:

- analysis of scientific literature on the use of social networks in education and knowledge management of university students;

- sociological research for a more detailed analysis of the possibilities and readiness of university professors and students to engage social networks in the learning process to identify the popularity of social networks, the main advantages and disadvantages of social networks in educating students, the targeted use of social networks, and the time spent on social networks;

- an expert survey to identify the benefits of electronic knowledge management, social networking tools, and examples of the use of certain social networks in the learning process.

The sociological study involved 212 students and 50 professors from different faculties. The age structure of students was 17-22 years old and 60% of them were 18-20 years old. The age structure of professors was 25-55 years old.

Afterwards, 30 professors acted as experts in an expert online-survey.

#### Results

As part of this research, the popularity of social networks among university teaching staff and students was determined (Table 1).

Nº	Social network	Students		Professor	Professors	
		%	Rank	%	Rank	
1	Facebook	26	3	38	1	
2	Twitter	10	4	6	5	
3	Instagram	31	1	22	2	
4	Vkontakte	29	2	18	4	
5	Odnoklassniki	4	5	13	3	
6	Viber	-	-	3	6	

Table 1

Popularity of social networks, %

According to the data of Table 1, the most popular among students was Instagram and the least popular — Odnoklassniki. Professors prefered Facebook and used Odnoklassniki more than students. Unlike professors, students did not mention Viber because they did not consider this service a social network but rather saw it as a messenger.

Based on the research, the following results were obtained regarding the advantages and disadvantages of social networks in student learning (Table 2).

Social network	Students		Professors			
	number of	rank	number of	rank		
	responses		responses			
Advantages						
Simplicity of use	76	1	7	4		
Accessibility	73	2	10	3		
Promptness of communication	26	4	15	2		
Activity in the learning process	37	3	18	1		
Disadvantages						
Loss of real communication skills	33	3	17	2		
Presence of advertising and other	125	1	21	1		
unnecessary information						
Addiction to social networks	54	2	12	3		
	Accessibility Promptness of communication Activity in the learning process dvantages Loss of real communication skills Presence of advertising and other unnecessary information Addiction to social networks	number of responsesSimplicity of use76Accessibility73Promptness of communication26Activity in the learning process37dvantages33Loss of real communication skills33Presence of advertising and other unnecessary information125Addiction to social networks54	number of responsesrankantages761Simplicity of use761Accessibility732Promptness of communication264Activity in the learning process373dvantagesU1251Loss of real communication skills333Presence of advertising and other unnecessary information1251	number of responsesranknumber of responsesantagesSimplicity of use7617Accessibility73210Promptness of communication26415Activity in the learning process37318dvantagesUU125121Loss of real communication skills33317Presence of advertising and other unnecessary information125121Addiction to social networks54212		

#### Table 2

Main advantages and disadvantages of social networks in the education of students (based on the answers of respondents, persons)

The data in Table 2 demonstrate disagreements between students and professors about the benefits of using social networks in education. Students pointed out such advantages of social media as simplicity of use and accessibility, while professors pointed out the promptness of communication and learning activity. Concerning the disadvantages of using social media, the answers were almost the same — the respondents were most dissatisfied with the advertising and extra information.

We also studied the targeted use of social networks (Table 3).

N⁰	Use of social networks	Students	Professors
1	Informational support of the learning course	98	7
2	Organization of effective teamwork between the study group, self-education	108	12
3	Use as a source of blogging, personal development, and self-fulfillment	77	7
4	Organization or participation in forums, surveys, polls, and online conferences	53	19
5	Use as a means of communication with friends, colleagues, and relatives	206	21
6	Assurance of joint work between students and professors	99	17

Table 3

Targeted use of social networks, persons (multiple answers)

In the hierarchy of targeted use of social networks (Table 3), the use of social networks as a means of communication with friends, colleagues, and relatives was in the first place both for professors and students. The second place for students was given to the organization of effective teamwork between study groups and self-education, while for professors — to the organization or participation in forums, surveys, polls, and online conferences. The third place, both for students and professors, was to ensure the joint work of the student and the professor.

We also consider it expedient to provide data on the time spent by students and professors on social networks in 24 hours (Table 4).

Time	Students	Professors
Not a user	-	7
Less than 1 hour	3	37
1-2 hours	26	34
3-4 hours	31	17
5-7 hours	24	5
More than 8 hours	16	-

Table 4

Time spent on social networks per day, %

Analyzing the time spent on social networks (Table 4), we can say that students, unlike professors, spent much more time on social networks during the day. On average, students spent 1-7 hours per day, while professors spent only 1-4 hours. Most students were on the social network for up to 4 hours and professors for up to 2 hours. In addition, 7% of professors (3 out of 50) did not use social networks at all. It was revealed that out of 212 students, 42% (88 people) accessed social networks up to 10 times a day, 21% (45 people) accessed social networks up to 20 times a day, 23% (49 people) accessed social networks more than 30 times a day, and 14% (30 people) were almost constantly online.

Thus, based on the research carried out, a SWOT-analysis of the use of social networks in the education of students was carried out, as a result of which we came to certain conclusions regarding the tools for solving this problem (Figure 1).

Advantages: easy to create a community (low expenses); students themselves are motivated to be online; convenient notification system; ability to use a variety of content.	<b>Disadvantages:</b> presence of distracting advertising and entertainment content; educational specifics are not considered in the design; external technical support.
<b>Opportunities:</b> prompt wide distribution and collection of information, by students as well (e.g. reposting); a highly informative community can be a competitive advantage (e.g. the ability to select different courses); an effective channel for collecting feedback from students; establishment of links between students; opportunity for professors to get to know their students better.	Threats: students may have access to the professor's personal information; risk of incomplete classroom coverage (e.g., those who do not use certain social networks or do not have access to the Internet); competition with corporate/private systems of education support.

Figure 1

SWOT-analysis on social networks in the educational process (compiled by the authors)

The results of the analysis identified the strengths and weaknesses of social networks in student learning, identifying threats and creating a list of existing opportunities.

Identifying the advantages of involving social networks in student learning, we consider it expedient to pay attention to the threats that may occur when using the virtual space for educational purposes.

We should point out that the professor should be an active Internet user, which is a requirement of the modern educational environment. Some disciplines require frequent enriching of the professor with Internet materials (update of the legislative base, dynamics and analysis of statistical data, information about modern foreign experience, etc.).

Therefore, the implementation of such a tool as social networks in the educational process can easily improve the existing forms of its organization.

This raises an additional question: is it possible to use social media tools to monitor and analyze student progress?

According to the experts, since the modernization of the educational process requires changes at all its stages, testing through social media tools will become more popular in organizing knowledge management. Electronic management has a significant list of advantages for professors and students over the traditional form of knowledge quality management (Table 5).

N⁰	Advantages	%*
1	high level of cooperation between students and professors	
	provides the opportunity to quickly test the knowledge of a large number of students on different topics simultaneously	87%
2	allows the professor to be free from routine work and mass management, which adds more time to improving their professional activities	87%
	opportunity to create and edit test questions online, user-friendly and intuitive interface	83%
3	increased opportunity for individual work with students, which in the new education system is one of the main components, as the student gets one-third of their knowledge independently	80%
	immediate access to and verification of the correctness of the answer, convenient ways to analyze the results	77%
	cross-platform social services (the ability to use them on different devices with different operating systems)	77%

Note: based on the expert survey; \* — the percentage of expert references

Table 5

Advantages of electronic knowledge management

The experts referred to Instagram, a popular social network for sharing photos and videos between users, as an example of the use of social networks in knowledge management, which can become a convenient tool for checking student knowledge. It has a voting function, which will be useful, for example, when conducting a lecture class or when there is a need to quickly question the audience about the understanding of the material. The disadvantage of such a survey is that only two answer choices are possible, but they can be selected independently (i.e. the answers are not just Yes/No, but one can change them to one's own). The survey results are monitored through messages that show how the respondents voted. The results themselves will be highlighted in the percentage format next to the answer choices.

#### Discussion

Discussing the results of the study, the experts considered it appropriate to dwell on such social networks as Facebook and Vkontakte, as these social networks are the most popular among students, i. e. our direct target audience.

Facebook reflects university communities and allows one to enrich knowledge in different sciences. This is evidenced by various groups of scientific and pedagogical directions, including Biology, Geology Rocks, Matematika, Science Group, Theoretical Physics, and others. Besides, there are the following pages devoted to the scientific interests of users: A Moment of Science, California Science Center, National Science Foundation, Popular Science, Science Careers.

The social network Vkontakte also includes a list of almost similar groups that unite people with scientific interests, among them: "Communication and collaboration of scientists from different countries", "Graduate students RU", "Young scientists for young scientists", "Informal communication on scientific topics", "Education and science", etc.

According to the experts, the following advantages of using social networks in the learning process can be mentioned: the student is at home, in a normal environment, so there is no psychological pressure from others; they are free to ask questions; the professor has the opportunity to work directly with the student on specific problems that are not understood by the student (implementation of individual approach); both the student and the professor have the opportunity to create their own educational content; it is a space for creativity and personal development. At the same time, the regular use of social networks in the learning process contributes to the formation of a culture of communication in the virtual environment and the development of communicative competence.

The experts believed that social media can be chosen as a learning tool primarily because it is a casual platform for students in their daily lives. Another important factor is the public accessibility of the network and the simplicity/usability of the interface.

Regarding the implementation of social networking tools in the educational process, the experts noted that the following tools can be used as opportunities for social networks:

- chat/"wall", this tool can be used for distance consulting, mutual teaching, and communication skills development;

- comments, communication, the main area of use in the educational process is the presentation of project results with discussion, quick feedback, posting additional materials, opportunities to work together, easier communication beyond formal learning;

- personal blog can be used to increase student motivation by implementing game technologies, tests, and surveys;

- ratings/"likes" — opportunity to evaluate the professor.

Further, the experts gave examples of using certain social networks in the learning process:

- Facebook — discussion of organizational issues with students;

- Google Docs — storage of learning materials, conducting surveys and questionnaires, working with tables and presentations;

- YouTube — watching and creating educational videos;

- Twitter, Livejournal — creating publications and useful links in the discipline;

- Coursera — mastering courses and trainings in various specialties;

- Ted — watching conferences on various relevant topics in English.

One of the main factors limiting the implementation of these tools remains the level of readiness of the educational process to use modern means of education (lack of scientifically grounded methodological recommendations, standards of time consumption, and professor's payment). According to the experts participating in the study, it can be concluded that by implementing social networks in the educational process, one can use them to solve the following problems:

- to organize collaborative work of students in the classroom and out of the classroom, which promotes cooperation and provides teamwork experience;

- to expand the organization of student learning at home, as social networks allow for the use of learning content beyond time, geography, and age limits;

- to develop a personalized learning environment for the student and facilitate the creation of their portfolio and learning content of subjects;

- to promote student self-education (implementation of research-based learning principles);

- to promote individual learning of students, as each student needs to work at their own pace;

- to carry out informal communication between the professor and the student;

- to introduce an electronic journal.

According to one expert, social networks can be used for "group learning (for work in educational mini-groups); personal learning (for self-education); random learning (the opportunity to learn something new unconsciously); intrauniversity learning (use to inform about the functioning of the educational institution and activities related to it)".

### Conclusion

Social networks are not only an entertainment and communication tool for interaction between people but also a powerful interactive platform — part of the information and educational environment, which has great educational potential. The use of the positive aspects of social networks provides significant advantages in the learning process.

Considering all the above, we can say that today, professors turn to the Internet and social networks, in particular, as a new educational environment and an effective means of ensuring creative and productive activity. Social networks are a fundamentally new means and are in the process of continuous evolutionary development. Many underestimate the advantages of social networks, focusing only on their weaknesses. However, in our opinion, there are great prospects for using social networks in the learning process. Interactive communication between students, on the one hand, and with professors, on the other hand, allows making the learning process interesting and fascinating and increase the level of motivation both on the part of students and professors.

The results of the study confirmed the hypothesis that the use of social networks in the educational process of higher education institutions, including as a means of knowledge management, contributes to the effectiveness of student learning.

Perhaps, trends of development and use of social networks in the educational activity of higher education institutions in the future will lead to the appearance of new network resources necessary for work and communication of creative teams, creation of new collegial networks, and association or merger of existing networks for knowledge exchange in scientific and educational activity, which play an important role in the development of education.

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