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INTERNATIONAL SCIENTIFIC COMMUNICATION IN THE CONTEXT OF SOCIAL NETWORKING SITES FOR SCIENTISTS

Abstract: In this paper, the author considers the alterations that occurred in the international scientific communication. It is mainly technological development that exerts the influence over these alterations – particularly the emergence of new media. The major part of this paper is dedicated to the issue of the use of social networking sites in scientific communication. In her considerations, the author refers to the world-wide research pertaining to social media in the meantime demonstrating the attitudes of Polish scientists in connection with the former. This paper also contains the results of the research on the attendance to social networking sites of the academics from the Nicolaus Copernicus University with the particular attention paid to Research Gate. The considerations lead to the conclusions that in Poland scientists approach the possibilities offered by social media with the slight skepticism.

Keywords: scientific communication; information society; social media; social networking sites; ResearchGate.

1. INTRODUCTION

The development of information society is directly connected with the common use of information-communication technologies while practicing a variety of professions – including the one of a scientist or an academic. Nowadays, the academic faces ICT on many planes of their professional activities. It is not only the research and didactic activity but also other actions taken within professional duties. The diagram 1 presents the selected computer applications used by academics in different realms of their professional activities.

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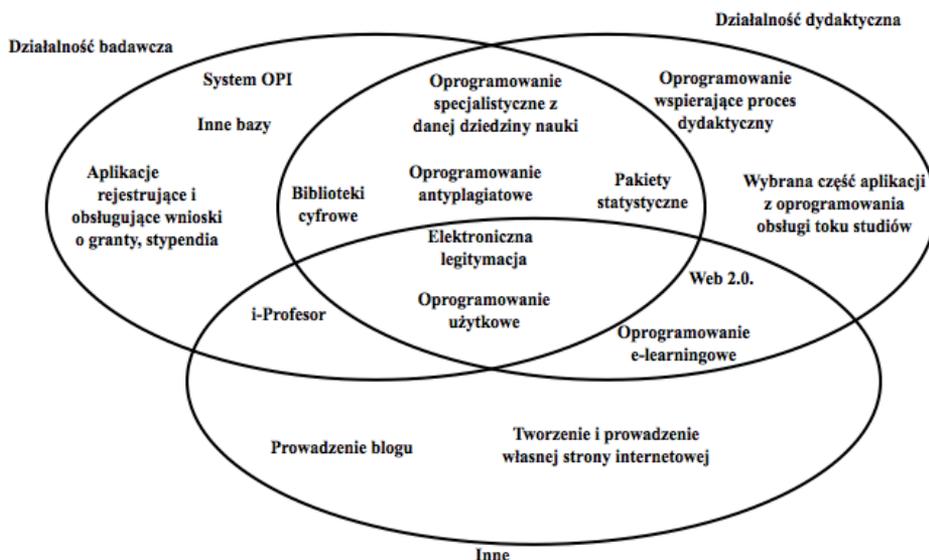


Diagram 1. The planes at which the academics use the information-communication technologies

Source: one's own work (Stachowiak 2012).

This synthetic and in a sense highly selective overview of the computer applications illustrates the scope of changes which took place in the profession of an academic. These, however, do not include all the changes. Some transformations occurred in scientific communication and they are significant too.

2. SCIENTIFIC COMMUNICATION, SOCIAL MEDIA

Communication is a term which is not defined unambiguously. Its definitions underline intentionality and the social and symbolic nature of communication. No less important are such constituents as the traits of senders and receivers, feedback, context, code and the channel. The main purpose of communication is negotiating the way of perceiving the world, creating similar constructs in the minds of interlocutors within a given culture. The term also indicates that understanding somebody else's point of view implies employing similar interpretative schemas of reality as well as similar evaluation of things, people and symbols (Nęcki 1996). The special type of communication is scientific communication, which is a part of social communication. Scientific communication may be regarded as the process encompassing the creation, dissemination and exploitation of information from the moment of scientists specifying their research until its public dissemination (Sordylowa 1997). Without thus understood scientific communication, the scientific development would be inconceivable and after all the efficacy of communication determines the pace of scientific development. What is a prerequisite to do science is the indispensable access to the already acquired scientific information; hence, the essence of scientific communication is the transfer. Generally speak-

ing, it embraces everything that occurs in the realm of mediation between information resources and scientists. (Sapa 2009).

Scientific communication is not homogenous. One can distinguish external scientific communication and the internal one. The first type should be understood as the process of “explaining and popularizing scientific research through – among others – publishing popular-science papers, organizing science events, creating the image of a scientist and science. (...). In other words, it means the popularization of science and the explication of the works and research results of scientists’ corpus”¹. Externality involves the fact that the receivers are situated outside the communicating group, that is outside of scientists. On the other hand, internal communication “embraces such phenomena as publishing scientific papers, scientific blogs, running and using social networking sites for scientists”². Internality is related to the fact that the communicating group and the receiving group is the environment of scientists. Still, in English, scientific communication in a broader sense is further distinguished into two distinct concepts: *scholarly communication* and *science communication*, which also reflects the typology into two separate subsets. Nowadays, this well-beaten model of disseminating the research results in scientific journals, books or during symposia and conferences is supported with information-communication technologies. We are witnessing a peculiar process of convergence, the result of which is not only widening the scope of possibilities of communicating with scientists but also inducing in researchers a series of questions, doubts and more or less profound reflections. Certainly, one of them should be related to the use of social media in scientific communication.

Social media provide the scientific environment with many possibilities which are still underestimated by scientific environments. It seems that the opinion uttered by Edwin Bendyk is still valid. In 2009, he claimed that Polish science is plodding out of the modernistic model of communication characterized with the clear division of labour: scientists conduct research, whose results are presented via specialized channels such as scientific journals, symposia, conferences (Bendyk 2009). However, social media properly used enable us to promote scientific knowledge, participate in the public discourse but also to initiate important debates.

3. SOCIAL NETWORKING SITES FOR SCIENTISTS

Social networking sites serve the purpose of enabling people to communicate. Some part of them are of the professional nature. Social networking sites for scientists may be regarded as the spots for making contacts, transferring scientific information, promoting one’s achievements, making evaluations and identifying people as well as communicating with them. The skillful creation of one’s own profile on the academic social networking site may contribute to – among others – the increase of the number of citations and the bigger recognition in the scientific environment. The basic function on the social networking site is the user’s profile which normally resembles the scientific corpus of a given scientist with

¹ Entry called „Komunikacja naukowa, czyli co?” on the blog edited by Emanuel Kulczycki, entry from 9 December 2012 available on the Internet at http://ekulczycki.pl/teoria_komunikacji/komunikacja-naukowa-czyli-co dostęp from 13 December 2012.

² Ibidem.

the acquired education, scientific degrees and areas of research and publications being especially underlined. The user may often post the bibliographic description of one's own publications and in some cases he or she may post their abstracts. On the selected networking sites, there is a possibility of presenting one's activity related to the participation in scientific conferences and the membership in scientific associations. The profile also contains contact details. Social networking sites dedicated to scientists offer other services such as the access to selected publications or journals databases. These days, in the cyberspace there are a few such social networking sites of academic nature.

The example of a social networking site for scientists implemented in Poland was to be the iProfesor site. According to its designers, the main motivation was to stimulate the cooperation between scientists in Poland. They planned enabling on this site the database of scientific journals. Currently, and actually since December 2012, iProfesor can be referred to only in the past tense since the site has been unavailable. The idea of that site was afflicted with many disadvantages from the very beginning. The first of them was the loyalty because the site was dedicated to Polish scientists. The second was its hermetic character because one could take advantage of its sources only upon entering the community. Anybody interested in his or her membership in that site was verified with respect to the place of his or her employment. After a dozen of months of the site being operative, one could arrive at the conclusion that scientists themselves were not interested in their activities on that site. Many accounts stayed inactive and their users did not reply messages or did not accept the invitations. The project actually existed for about 2 years; it was funded by European Union in 85% and its cost amounted to 913 853,66 PLN³.

Another instance of the social networking site, but in this case of international range is ResearchGate⁴. This site is dedicated to scientists of all scientific disciplines. In the middle of October 2015, 8 million users were registered at this site. At this site, each of the users create a profile on which what is enabled is publishing one's scientific works, lectures and papers. The users of ResearchGate can also use the virtual library and create micro-papers, that is abstracts having no more than three hundred words. Furthermore, ResearchGate has other functions typical of social networking sites such as: the possibility of exchanging messages in the Internet, keeping contacts with other users on Internet fora, writing a blog, the participation in discussion groups. Some of the international organizations use this site to communicate with its members⁵.

The users of this site can use the browser for job offers as well as they can exploit the databases containing scientific papers and their abstracts. The collection of the publications available at this site encompass the main databases and over a thousand sources of the *open source* type. In ResearchGate, there is also the system of recommending publications bearing some thematic resemblance to secondary literature in the area of research of the person recommending them as well as to the users of the similar area of research. The authors of the texts may post their abstracts using the application JournalFinder, which, having conducted the analysis of the contents, will indicate which scientific journal might be in-

³ Innovative Economy Operational Program [OPI], WND-POIG.08.01.00-10-107/09.

⁴ Social networking site ResearchGate can be found at <http://www.researchgate.net/>. Using it is allowed upon creating an account.

⁵ An instantiation of such an organization might be European Science Foundation.

terested in a given paper. For each user, what is calculated is the RG indicator, which means the scientific reputation.

Another social networking site dedicated to scientists is ResearcherID⁶. The tools implemented at this site enable us to browse the scientific corpus with respect to surnames, scientific disciplines and countries. The next solution is Index Copernicus Scientists⁷ – an international social networking site dedicated to scientists. This site makes use of the information entered by its users – the members of the community. Each user creates his or her own profil which also contains the parametres from ResearcherID. The information contained in the profile embraces personal details, publications, the participation in scientific conferences, in projects and grants etc. In Index Copernicus one creates then a transparent scientific profile for a researcher but also – which is a sort of novelty – what is generated is the objective evaluation of the scientific corpus based on the complex multi-parametre and patented algorithms. Apart from that, as the designers of that project inform, for each scientist what is automatically created is the list with the information related to the potential co-operators in the conduct of scientific research, new publications from the scientist's area of interest as well as it provides the information on the available grants, organized meetings and scientific conferences.

4. METHODOLOGY OF RESEARCH

The research was conducted in three terms: July 2013, March 2014 and March 2015. It made use of the Internet database of the employees of Nicolaus Copernicus University, from which the research derived the information about the organizational structure. The contents of the database was compared with the list of the persons having the profile on the social networking sites dedicated to scientists, the profiles being affiliated with UMK. In 2015, the research was narrowed down to ResearchGate because it proved to be the most popular.

The objective of the research was to diagnose the changes with respect to the activity of the employees of Nicolaus Copernicus University on social networking sites and to determine what factors influence their activity there.

5. RESEARCH RESULTS

The research dating back to 2013 indicated that the most popular networking site is ResearchGate. 13% of academic teachers from Nicolaus Copernicus University [herein-after referred to as UMK] were registered there. A far less great popularity boasted Research ID- 3% of the overall number of lecturers and IndexCopernicus with mere 2%. In 2014, the research indicated similar disproportions, ResearchGate proved to be of some interest to 21% of academic teachers from UMK; ResearchId reached the level of 7%, whereas

⁶ Social networking site ResearcherID can be found at <http://www.researcherid.com>. Using it requires creating an account.

⁷ Index Copernicus Scientists is one of the products of the joint Index Copernicus International.

the scientists' membership in IndexCopernicus remained unchanged and amounted to 2%. For this reason, in 2015 the academics from UMK's activity in ResearchGate was analyzed.

The percentage of academic teachers in that social networking site has been ceaselessly increasing; since 2013 till 2014, the share went up from 13% to 29% although the structure of faculty leaders remained the same. The most active entities in 2013-2015 proved to be the Faculty of Biology and Environmental Protection, the Faculty of Chemistry, the Faculty of Earth Sciences and the Faculty of Mathematics and Computer Science. The discrepancy between the leader and the holder of the last position is about 71 percentage points. The details are presented in the diagram 1.

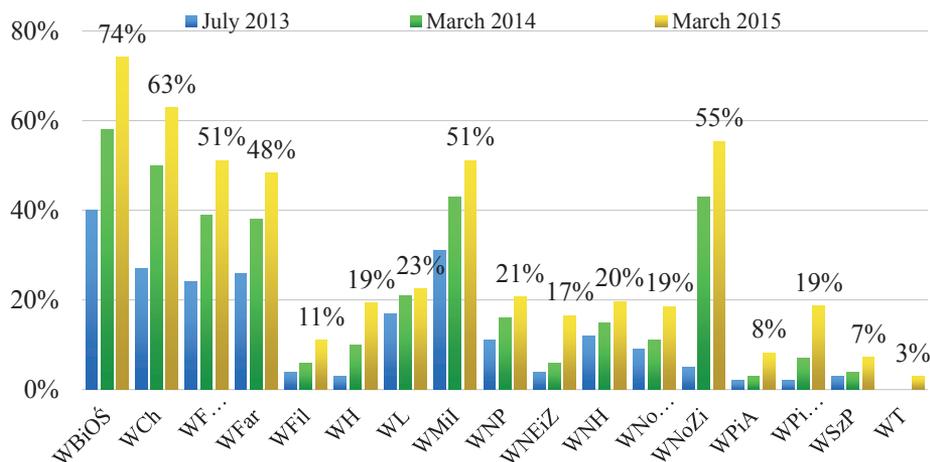


Diagram 1. Percentage share of academics from UMK in Research Gate within 2013-2015⁸.

Source: my own work.

The more detailed analysis indicates that, the highest share fell upon the academics with Ph.D. with habilitation- 37%, and the second best were Ph.D.'s- 30% closely followed by professors- 29%. Table 1 contains the detailed data.

⁸ WBiOŚ – Faculty of Biology and Environmental Protection; WCh – Faculty of Chemistry; WFIS – Faculty of Physics, Astronomy and Informatics; WFar – Faculty of Pharmacy; WFil – Faculty of Languages; WH Faculty of Humanities; WL – Faculty of Medicine; WMiI – Faculty of Mathematics and Computer Science; WNP – Faculty of Education; WNiZ – Faculty of Economic Sciences and Management; WNH – Faculty of History; WNoZd – Faculty of Health Sciences; WNoZi – Faculty of Earth Sciences; WPiA – Faculty of Law and Administration; WPiSM – Faculty of Political Sciences and International Studies; WSzP – Faculty of Fine Arts; WT – Faculty of Theology.

Table 1. The share of academics from UMK with the division into faculties.

Faculty	The percentage of professors on RG	The percentage of Ph.D.'s with habilitation on RG	The percentage of Ph.D.'s on RG
WBiOŚ	78%	90%	65%
WCh	57%	63%	58%
WFAiIS	54%	50%	48%
WFar	67%	57%	44%
WFil	10%	17%	11%
WH	15%	0%	31%
WL	40%	50%	25%
WMiI	43%	70%	54%
WNP	10%	40%	24%
WNEiZ	32%	0%	13%
WNH	10%	38%	21%
WNoZd	23%	42%	20%
WNoZi	42%	78%	58%
WPiA	6%	0%	6%
WPiSM	6%	8%	31%
WSzP	7%	0%	8%
WT	0%	6%	0%
mean	29%	37%	30%

Source: my own work

What is noticeable is the difference between particular faculties; against the background of the whole university, the least visible are the representatives of humanities and social science. The absence of scientists on the academic networking sites is a symptom of a wider-scope phenomenon manifested as the unwillingness to use ICT in academic work or regarding electronic publications as less worthy etc. The diagnosis dating back from 2009 and stated by Edwin Benedyk, who claimed that Polish science is plodding out of modernistic model of communication remains valid up to date. However, social media properly used allow for promoting scientific knowledge, for participating in public discourse as well as initiating vital discussions.

The weekly analysis of the author's profile at the turn of June and July 2015 shows that due to the membership in ResearchGate, the scientists from Poland popularize their achievements in the world. The number of people from other countries browsing or downloading

the publications is much greater than the ones from Poland; they are often people inhabiting other continents. For instance, let's look at the category- downloading publications:

8-14 June: Poland – 12 persons, USA – 12, China – 10, France – 5. 22-28 June: USA – 24 persons, China – 14, France – 13, Poland – 4, Ukraine – 1, Indonesia – 1. 13-19 July: USA – 29, China – 16, France – 3, Russia – 1. The category- browsing the publications: 8-14 June: France – 22 persons, USA – 10, Poland – 9, China – 4. 22-28 June: France 57 persons, USA – 6 persons, Poland – 4, China – 2, Indonesia – 1, Germany – 1. In the category viewing the profiles: 22-28 June: USA – 7 persons, China – 5, Poland 4, France – 3. 6-12 July: USA – 8 persons, China – 5, Iran – 2, Russia – 2, France – 1. It is worth noting that this popularizing channel is free of charge; the actions might be intensified by the participation in discussions, asking questions etc.

6. CONCLUSIONS

ICT tools are only the tools facilitating doing the job of a lecturer. Their use mustn't be an end in itself because then their use is perceived as something artificial or even pretentious. It is worth remembering that particular media differ from each other; for instance, running one's own Internet site in comparison with social networking sites is of a more emotional and at the same time less official nature.

There are many arguments counting in favour of using social networking sites on academic grounds. First, which mainly concerns the lecturers of X generation, using new means of communication on professional grounds requires not only reflection and the acquisition of new skills but also it allows to break the routine, to avert the burn-out syndrome, which particularly emerges after 20-30 years of professional career. Second, using social media certainly constitutes an act of popularizing science on the part of an academic teacher and as such it should be treated when it comes to the evaluation of a given lecturer. Running an Internet site for students or a scientific blog after all requires a greater involvement and systematicity than writing many a popular-science paper. Third, in the countries in which funding science is marginal. In the case of Poland, in 2015, research and development was funded with 0,42% of GNP. For the sake of comparison, the mean for European Union amounted to about 2% and in Finland- almost 4%. Academic social networking sites are the way to come into the limelight with one's research results beyond one's local environment. Unfortunately, publishing in foreign journals very often entails making payments and some part of faculties cannot afford to bear such costs. Hence, scientific employees should strive for reaping maximum benefits from academic social networking sites. Fourth, academic teachers particularly within humanities and social science should intensify their activities in the realm of popularizing their own corpus. The provision concerning the dissemination of science is even included in proceedings for promotion. And although lectures and popular-science papers are important, they do not have a bearing on coming to the fore beyond one's local environment. A means to that end is exactly what the global network provides.

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