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THE USE OF ACADEMIA.EDU, RESEARCHGATE, GOOGLE SCHOLAR, SCOPUS, AND PUBLONS AMONG THE POLISH RESEARCHERS OF SOCIAL COMMUNICATION AND MEDIA SCIENCES

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KEYWORDS: Social Communication and Media Sciences. Academia.edu. ResearchGate. Google Scholar. Scopus. Publons.

ABSTRACT: **Aim –** to define the degree of activity, bibliometrics, and altmetrics of Polish researchers in social communication and media sciences on scientific websites: Google Scholar, ResearchGate, Academia.edu, Publons, and Scopus, and purposes of their use. **Methodology –** quantitative study on the research sample of 570 academics. The collected data were then subjected to statistical analysis. **Findings and conclusions –** The intensity and manner of using the websites depend on the period of their operation, differences in functionalities, but also on the publishing and scientific activity (sharing bibliographies and texts on the websites, communication and information exchange, cooperation) of researchers.

INTRODUCTION

Since the middle of the first decade of the 21st century, scientific communication has gained newer channels ever. Tools, services, and websites have been developed in which scholars can show and share their achievements, create networks of contacts, and show their impact on science. The article analyzes Polish researchers' in social communication and media sciences presence in several resources of this type: Google Scholar, ResearchGate, Academia.edu, Publons, and Scopus. The focus was on determining the scale of this presence and usage of various functions and capabilities of platforms by the respondents – primarily publishing their work. Attempts were also made to show the current impact and popula-

rity of scientists and their work presented on the websites studied. These platforms have many different functions. Google Scholar, and especially Google Scholar Citations (GSC), although it is not strictly a social tool, is often analyzed together with the platforms mentioned above. It allows academics to create their profiles and add a bibliographic list of publications; the website provides the current number of citations for individual titles.

Furthermore, it provides the author's h-index (automatically calculated). Academia.edu and ResearchGate provide the opportunity to build relationships between scientists and offer alternative reputation measures other than the number of citations or publications. Users of both websites can create private profiles where they can publish their works. ResearchGate also has many functions characteristic for social networking sites: exchanging messages, maintaining contact with other users on Internet forums, creating blogs, and participating in virtual groups. ResearchGate and Academia.edu allow users to ask questions to the entire community of these websites.

In addition, colleagues from one institution are visible to one another. Publons is a website for scientists integrated with the Web of Science database, ORCID, and thousands of scientific journals. It enables scientists to quickly and efficiently track and present in one place more complete data on their international recognition as authors of texts indexed in Web of Science, as journal editors and reviewers. Publons also has the advantage of allowing the number of reviews made by a researcher to be shown along with the journal title in which the peer-reviewed article appeared. Scopus is a scientific database maintained by the Elsevier publishing house. It contains information on published research papers, such as journal articles, books, conference papers, and patents. It also indicates citations of these works. Apart from the option to inform about publications and post their full texts, the discussed platforms also show citation indicators and altmetrics.

The analysis of these options by scientists gives an image of their activity in new channels of scientific communication. It also shows the primary purposes of using the platforms. Each of the websites has its specificity in this respect and offers slightly different indicators. Citation registration and h-index platforms show the impact and productivity of researchers. On Academia.edu, the impact is visible thanks to the number of pageviews. RG Score records impact and popularity, which means productivity and a researcher's interactions with others. The question and answer (Q&A) section of this site may also help you research interactions.

RESEARCH OBJECTIVES

The research objective was to determine the degree and goals of using websites and platforms for scientists by researchers involved with social

communication and media sciences in Poland. The study group consisted of employees of 20 different higher education institutions in units providing education in the field of journalism, library science, and information science or other studies related to the discipline. Detailed analysis of demographic and academic features of the population is discussed in other publication (Świgoń, Głowacka, & Kisilowska, 2022).

The following research questions were posed:

- What is the respondents' scale on scientific platforms and which platform is the most popular one?
- How are bibliometrics and altmetrics distributed in the study group of scientists?
- What is the scale of sharing full texts on RG and Academia.edu?
- Do the respondents use several platforms simultaneously?
- What are the functions (goals) of using the websites?

STATE OF RESEARCH

In 2014 Richard Van Noorden researched the popularity of ResearchGate and Academia.edu in a group of 3,000 representatives of science, humanities, and social sciences. He noticed large differences in the preferences of using the websites mentioned above: in ResearchGate, representatives of exact sciences are most often present, and in Academia.edu – representatives of humanities and social sciences (Van Noorden, 2014). Similar results were recorded in 2015 and 2017 by Jose Luis Ortega. He stated that representatives of humanities and social sciences treat ResearchGate primarily as a channel of scientific communication (Ortega 2015, 2017).

In 2015, María I. Míguez-González, Iván Puentes-Rivera, and Alberto Dafonte-Gómez analyzed the activity of media experts from universities in the north of Portugal on the same websites. Their research shows that nearly 60% of scientists from the study group were present in academic social networks, but only every sixth researcher entered all their data into the profile. ResearchGate was used less; one person deposited 11 documents on average there, while on Academia.edu, it was 18 publications. The mean number of views, followers, and following was significantly lower for ResearchGate (82 views, 38 followers, 31 followings) compared to Academia.edu (973 views, 169 followers, 106 followings) (Míguez-González, Puentes-Rivera & Dafonte-Gómez, 2017).

Małgorzata Kowalska and Przemysław Krysiński (2019) studied how Polish representatives of social communication and media sciences communicate their latest scientific achievements. They attempted to identify scientific publications for the years 2017–2019 on Google Scholar, ResearchGate, and Academia.edu. The objective of the research was to check

whether the researchers selected in a random sample post information about their publications on these platforms, what the form of their scientific messages is (sharing bibliographic descriptions of documents, full texts, pre-and post-prints), and what the perception of users is (views, downloads, citations, comments, questions, discussions, recommendations). The authors also tried to answer the questions of whether these websites constitute an alternative to bibliographic databases in the processes of managing one's achievements and whether the available altmetrics (e.g. downloads, views, comments, discussions, recommendations, etc.) can be a determinant in the evaluation of a scientist's activity and achievements. Fifty-five women and 45 men participated in the study. As the authors emphasize, the results of their research indicate a low level of use of the potential of the three analyzed websites. Although 60% of scientists have a profile on at least one website, the rest are not present. Out of a total of 113 identified profiles of scientists, only 65 publications from 2017–2019 are included. The small number of altmetrics established in them also indicates that if these metrics were to play an essential role in assessing the value and impact of scientific publications today, this assessment would be unfavorable for the Polish representatives of social communication and media sciences covered by the study (Kowalska-Chrzanowska & Krysiński, 2020).

The issue of sharing research conducted by information scientists and bibliologists on scientific websites representing institutes of scientific information and library science of Iranian universities was studied by Amir Reza Asnafi, Mohammad Amin Erfanmanesh, and Maryam Pakdaman Naeini (Asnafi et al., 2017). They were interested in the activity of scientists on Research Gate. Thirty-six people were active on the website, and 654 documents were made available. It was noted that articles, conference papers, and books were shared more frequently than other documents. It was also shown that there was a positive, statistically significant correlation between the documents cited in Scopus and their views in ResearchGate. This means that as the number of citations for indexed documents in Scopus increases, their views in ResearchGate also increase.

In Poland, information scientists and bibliologists in generally accessible social networking sites were also analyzed. These include the survey conducted by Lidia Jarska in June 2015 among 209 scholars. On their basis, the author concluded that 35 respondents have a Facebook account, most of whom are Ph.D. holders, aged 31-50, 20 scientists are registered on LinkedIn, 12 respondents have a Twitter account, and 11 are present on GoldenLine (Jarska, 2016). Research conducted by Bernadeta Iwańska-Cieślik from March 2015 is also interesting. It concerns using various network space channels to present their scientific achievements, including social scientific websites Academia.edu and ResearchGate, by 261 representatives of units related to information science and bibliology. According to

its results, 51 respondents use Academia.edu to share publications (in this group, the dominance of women and people with a Ph.D. was observed), and 37 use RG (Iwańska-Cieślik, 2016).

On the other hand, Natalia Białka studied Polish bibliologists and information scientists in terms of using two platforms: Academia.edu and ResearchGate. Collecting data on employees was limited to the following variables: age (in a dichotomous division into younger and older researchers), gender, scientific status (education and position), research interests. The results of the analyzes confirmed the presence of representatives of Polish information science and bibliology in the analyzed social networks. In the structure of Polish information scientists and bibliologists present on Academia.edu and ResearchGate, women over 35 years of age, holding a Ph.D. degree, employed as an assistant professor, and specializing comparably in information science or bibliology dominate (Białka, 2019).

Shortly after its launch, Google Scholar Citations became the subject of information science and scientometric research. For example, Ze Huang and Bo Yuan (2012) studied differences in the number of citations between disciplines, correlations between indicators and citation patterns specific to individual researchers, and changes observed in research interests over time. Google Scholar Citations was also the subject of a series of studies by Spanish authors José Louis Ortega, also in collaboration with Isidro F. Aguillo. Aguillo (2012) studied the usefulness of Google Scholar (as a free bibliographic database) in bibliometric research. Together, they started (Ortega & Aguillo, 2012) by creating and analyzing a map of keywords used by researchers having their profiles in Google Scholar Citations, arranging them according to the Scopus Subject Area classes. The obtained data revealed that GSC users are primarily concerned with computer science and related disciplines, such as scientific information, mathematics, and bioinformatics. In the next study (Ortega & Aguillo, 2013), the authors prepared the institutional and national cooperation network characteristics based on data from Google Scholar Citations (based on data on co-authors of works registered in researchers' profiles). GSC has been recognized by the authors as a resource that can be used in research on cooperation networks, but only at the macro level – between countries and institutions, and with the reservation that the quality of the available data depends on the respondents themselves.

In 2014, Ortega and Aguillo conducted a comparative analysis of author profiles on Microsoft Academic Search (MAS) and Google Scholar Citations (Ortega & Aguillo, 2014). As they showed, profiles on GSC contain more academic publications and citations than those on MAS. However, they are dominated by computer sciences, while on the Microsoft website – they are more diverse in terms of the disciplines represented. On the other hand, there were more technical errors in MAS, such as duplicate

profiles or too rare data updates. Their advantages include access to many and varied publications, and thus demonstrating a broader scientific impact, the ability to adjust a profile to individual needs, and a system enabling bibliometric analyzes on large populations. The disadvantages are primarily technical limitations, such as duplicate profiles, false citations, possible data manipulation. In both cases, the authors concluded that search engines could only be used for evaluation and parameterization purposes in conjunction with other tools as an additional source of information. They considered MAS to be a better tool in analyzes of individual disciplines (at the institutional and individual level), while GSC – in personal evaluation (due to the variety of available materials and citations) (Ortega & Aguillo, 2014, p. 1155).

In the text on the evolution of users of scientific information websites between 2011 and 2012, José Louis Ortega (2015) describes (and uses) Google Scholar Citations as a tool for analyzing the number of users, their bibliographic indicators, institutional affiliation (including positions) and geographic affiliation. At that time, the users of Google Scholar who had their profiles on the website were primarily young scientists, mainly representing scientific information and technical disciplines, often also representing specific countries and institutions. Thus, the population of Google Scholar users could not represent the research on social media users targeted at academics.

Stefanie Haustein and her team (Haustein et al., 2014) studied the scale of the use of social media by bibliometrists – both in terms of their involvement (having a profile on the platform and updating information on their academic achievements) and the popularity of their articles in bibliography management tools. The results were different for different tools – for example, in the case of management tools, a significant difference was found between Mendeley and CiteULike. When it comes to the presence on social media platforms, most respondents (68%) declared having an account on LinkedIn, almost half on Twitter, and only about 20% on Academia.edu, Mendeley, or ResearchGate. The authors conclude that some online tools are heavily used by bibliometrists and represent a potentially valuable source of data on scientific impact.

Data on having a profile on GSC was collected twice – in February 2012 and November 2013 (see also Bar-Ilan et al., 2012). During this period, there was an increase from 13 to 30 accounts (i.e. from 23% to 53% of 57 respondents), which shows the growing interest in this website in the analyzed period. However, it was found that the bibliometrist community has a specific interest in scientific data and, as such, cannot be representative of other disciplines and fields of research.

In the next stage – a survey (71 responses) – the use and opinions of social media platforms in the community of bibliometrists were checked.

GSC was used most intensely among other platforms (Academia.edu, Mendeley, Microsoft Academic Search, ResearcherID (WOS), ResearchGate) in all types of activity studied, i.e. adding publications, removing inappropriate ones, merging duplicates, and checking citations. Out of 22 people who mentioned this tool as being used by them, the answers for individual activities were: adding publications – 10, deleting publications – 11, combining duplicates – 13, checking citations – 19. Researcher ID was the second platform most intensely used and indicated by 14 people.

The research on GSC also showed a thread of potential problems with the data presented there. Delgado López-Cózar and his team (2014) explored the possibility of non-existent indexing articles and manipulating bibliometric indices. In turn, the team of René Van Bevern (Van Bevern et al., 2016), working on GS resources, showed the risk of manipulating the number of citations and the Hirsch index available due to the possibility of linking articles.

Another comparative analysis, this time on three bibliometric databases: Google Scholar, Scopus, and Web of Science, was conducted by Anne-Wil Harzing and Satu Alakangas (2016), working on indicators (number of publications, number of citations, h-index) from five disciplines (humanities, social sciences, technology, exact science, and life sciences). They showed a steady increase in the number of publications and citations in all three databases.

GSC is an impact-building tool popular with scientists across various disciplines. Hamid R. Jamali, David Nicholas, and Eti Hermans (2016) conducted a study of changes taking place in scientific communication and measuring scientific impact as a result of introducing new services and tools, including social platforms. The survey included 251 scientists from Europe. It was shown that a research reputation is still built mainly by traditional methods, such as research collaboration, participation in projects, and publishing in major journals. The new platforms still carry some risk and are therefore less trustworthy. In this study, Google Scholar Citations was the third (after Kudos and ResearchGate) network website (classified as traditional) used to present their achievements and build their scientific reputation by the respondents. In addition to these two, the following positions were taken by: LinkedIn, ResearcherID, Academia.edu, Mendeley, and with significantly lower results: BiomedExperts, ImpactStory, and LabRoots (Jamali, Nicholas & Herman, 2016, p. 42).

According to the team of Emilia Delgado López-Cózar (Delgado López-Cózar et al., 2017), the GS search engine and other tools (GSC, GSM, H Index Scholar, Publishers Scholar Metrics) were created in response to the observed increase in the number of queries regarding scientific materials in Google basic search engine. The researchers found that these questions are similar to each other, formulated primarily based on the

scientific text structure (Delgado López-Cózar et al., 2017). The search engine quickly gained popularity in academic communities and the formal scope of the search and the publishing form of publications. From the bibliometric perspective, Google Scholar and its tools have some drawbacks (lack of control, erroneous data, possibility of manipulation) and an important advantage of being an extensive data resource, providing access to the largest and most formally diversified collection of scientific materials. A disadvantage of such an extensive resource is the availability and analysis of low-quality materials, which may negatively impact the credibility and reputation of academics.

Another comparative analysis concerned citation indicators between Google Scholar, Web of Science, and Scopus (Martín-Martín et al., 2018). The study included nearly 2.5 million citations to 2,299 English-language, highly-cited documents from 252 Google Scholar subject categories, published in 2006. The authors observed a much larger reach of GS (once again) compared to other databases, including, apart from articles, different types of publications and non-English-language documents, and the extension of the scope of the GS collection (in earlier studies dominated by computer science). However, doubts about the quality and availability of data in GS remained.

The team of Emilia Delgado López-Cózar continued research on GS, then focusing on the topic of using data from Google Scholar for the evaluation of a researcher (Delgado López-Cózar, Orduña-Malea & Martín-Martín, 2019).

A comparative study on the size of twelve of the most popular academic search engines and databases was carried out by Michael Gusenbauer (Gusenbauer, 2019). The size is understood here in terms of the scale of the materials available to users during the search, not the total number of records theoretically available. Among others, the size of the ProQuest and EbscoHost databases was estimated for the first time. It was found that the size of Google Scholar may be significantly underestimated and that it is now the academic search engine with the broadest range in terms of types of indexed documents.

The use of scientific, social platforms by academics representing economic sciences was studied by Łukasz Wiechetek (2019), who analyzed ResearchGate and Google Scholar. Based on a deliberate selection of economic departments, the author selected 364 scientists and checked their presence and possible activity in RG and GS. He showed that the platforms mentioned above are used relatively rarely by them (only 38.2% of respondents had profiles on both websites, the majority in GS). They were used almost exclusively to create a work portfolio but very rarely to communicate with other researchers.

Brent Thoma and Teresa M. Chan (2019) dealt with tracking/finding publications of a given research group and their associated indicators – a process often needed to demonstrate the effectiveness and impact of a given project. The ability to track achievements and citations of specific researchers is available on Google Scholar, which was used by the authors of this study, who created profiles for five different groups with different goals, sizes, and compositions, adding their members' publications and tracking citations. The authors conclude that scientific entities may more widely use the possibility of creating a profile for a research team to track indicators of their achievements in the future.

Margaret Merga and Shannon Mason (2020) conducted a qualitative study (20 semi-structured interviews) among young academics (Ph.D., post-doc) from Australia and Japan, asking about methods to disseminate their research results – both within and outside the scientific community. Articles in peer-reviewed journals turned out to be the primary method. As for the methods of disseminating the results of their work, not all respondents were aware of their diversity and scale of impact. Some believed that their texts would certainly be searchable on Google Scholar. They did not want to feel like "persuading others" to read their publications by making them widely available through multiple channels. When asked about methods of sharing the results of their work with the academic community, they mentioned ResearchGate, Twitter, and Open Access publications in the first place. Google Scholar ranked 9th in terms of the frequency of being said, with an exemplary comment about the "obvious" availability of this tool and encouraging colleagues to have their profile there (Merga & Mason, 2020, p. 282). The complete set included: ResearchGate, Twitter, Open Access, scientists mailing, transferring responsibility to the journal/publisher, Research map (database available in Japan), Academia.edu, private websites, Google Scholar, university websites, institutional repository, discussions with scientists, information in the signature in mailing, Facebook, LinkedIn, publishing preprints, media, traditional correspondence with scientists, sharing printouts of texts, no action in this regard.

Margaret Merga, Shannon Mason, and Sayidi Mat Roni deepened this research thread in their next article (Merga, Mason & Roni, 2020), analyzing the problem of competitiveness in the world of science and the application of benchmarking – comparing scientific achievements (h-index, citation indicators) between academics and about the successes of the entire discipline. For this purpose, they conducted a critical analysis of Google Scholar as a benchmarking tool in the context of the availability and credibility of data on this website. The research involved profiles of professors related to education sciences from the best universities in Australia, Great Britain, and the United States. Google Scholar turned out not to be a good

platform for this type of research due to doubts about some of the data available there.

So far, little empirical research has been conducted using Publons. One of only a few studies concerned comparing the number of publications from various fields and different publishers in two databases: Publons and Scopus (Ortega, 2019). In light of the results obtained, physical and engineering sciences are underrepresented in Publons, while biological sciences and health sciences are even favored. Publons indicators cannot be a sufficient measure of the impact of publications due to the above limitations and the lack of correlation with other bibliometrics (citation) and altmetrics (number of downloads, social media mentions). In another study (Ortega, 2017), an attempt was made to analyze the correlation between the activity as a reviewer reflected in Publons and scientific activities depicted in Google Scholar. It turned out that renowned male scientists do most reviews, and young female researchers are among the most demanding reviewers.

The ratio of the polarity of reviews to the number of citations was also studied. In the light of Chinese research, publications with post-publication reviews receive a much greater number of citations (Zong et al., 2020). Websites dedicated to reviewing texts already published in journals (post-publication peer review), which in addition to Publons, also include platforms such as ResearchGate, F1000, and PubPeer, provide several methods for their users to comment on documents.

METHODOLOGY AND ORGANIZATION OF RESEARCH

The research group consisted of 570 scientists from all over Poland involved with social communication and media sciences by workplace (faculty, institute, department) or subject of research. When establishing the list of respondents, the authors used the data available in November 2020 in various Polish databases on university employees, e.g. Nauka Polska, Radon, and on the websites of individual universities. The research covered most of all scientists related to social communication and media sciences in Poland employed at 20 higher education institutions, primarily universities. The units with the highest number of people from the discipline in question were taken into account for data collection.

At the same time, i.e. until November 2020, data was also collected (except for personal data) on the use by the 570 scientists mentioned above of five most popular websites and platforms in the academic community: Academia.edu, ResearchGate, Google Scholar, Scopus, and Publons.

The sample was dominated by two universities: the University of Warsaw (13.5% of all respondents) and the University of Wrocław (11.9%). Large groups, i.e. over 40 people, came from three other public univer-

sities: the University of Silesia in Katowice, Maria Curie-Sklodowska University in Lublin, and Jagiellonian University in Krakow. In terms of the degree and academic title, the study group consisted of professors (10.7% of all respondents), habilitated doctors (35.7%), doctors (47.7%), and masters (5.9%). In the entire research group, there were more women (306; 53.6%) than men (264; 46.4%).

The research focused on the analysis of data and indicators that allowed for the objectives set to be achieved. The elements analyzed were determined by the nature of the platforms and websites. However, efforts were made to select them so that their popularity and the scale of the presence of the scientists studied could be determined. Here, information related to the number of accounts and their completion with personal data in individual projects was taken into account. The authors were also interested in the purposes of using the discussed resources, the final effects of the presence and activities of the respondents. Therefore, attempts were made to analyze also indicators related to the impact of scientific publications on other studies, i.e. bibliometrics displayed on the platforms. The authors limited themselves to examining the number of accounts with citations and the h-index as well as determining the number of people whose works were cited in the ranges adopted in the analyzes. Data related to the productivity of scientists (publication lists) and their openness, the possibility of publishing full texts, or interactions between researchers were also collected and analyzed. Altmetrics such as RG Score, Total Page Views, and the number of accounts with pageviews in specific ranges were helpful in the latter. The ranges of the number of publications, citations, and pageviews were adjusted to the collected results in such a way as to reflect their structure as accurately as possible. The means, medians, and modes of the analyzed indicators were also shown to present the central tendency. Ultimately, the following set of elements was selected, collected, and analyzed (see Table 1).

Table 1. Elements subject to analysis on Google Scholar, Scopus, Publons, ResearchGate, and Academia.edu

Website	**Analyzed elements**
Google Scholar	• number of researcher accounts on the website • number of researcher accounts with a photo and description on the website • number of researcher accounts with information about citations and the Hirsch Index

Scopus	• number of people with at least one publication • total number of publications studied in the database • total number of citations of the publications studied in the database • number of people with citations (in the ranges: up to 10; 11-20; over 20)
Publons	• number of researcher accounts on the website • number of researcher accounts with a photo • total number of publications studied on the website • number of researcher accounts on the website with information about citations and the Hirsch Index • Summary Hirsch Index • number of researcher accounts with publications (in the range 1-5, 6-10, 11-15, over 15) • number of researcher accounts on the website with reviews
ResearchGate	• number of researcher accounts on the website, • number of researcher accounts with a photo • number of researcher accounts on the website with bibliographic data on publications • number of accounts with full texts of publications (broken down up to 10; 11-20; 21-40; over 40 publications) • number of accounts with RG scores (broken down into the indicator levels 1-5; 6-10; 11-15; 16-20; over 20) • number of accounts with an active Q&A section
Academia.edu	• number of researcher accounts on the website • number of researcher accounts with a photo • number of researcher accounts on the website with bibliographic data on publications • number of accounts with full texts of publications (broken down up to 10; 11-20; 21-40; over 40 publications) • Total Views for all respondents • number of accounts with views (division into groups 1-100; 101-500; 501-1000; over 3000 views)

RESULTS

The most popular website in the study group of 570 scientists involved with social communication and media sciences (Table 2) was Academia.edu, where 294 people had an account (51.5% of the total of 570 respondents), followed by ResearchGate (43.1%) and Google Scholar (43.1%), with 246 profiles on each. One hundred forty-eight people from the study group had their profiles in Scopus (25.9%) and only 78 in Publons (13.6%).

Table 2. Usage of services and platforms for scientists in the entire group of respondents.

No.	Website for scientists	N=570	%
1	Academia.edu	294	51.5
2	ResearchGate	246	43.1
3	Google Scholar	246	43.1
4	Scopus	148	25.9
5	Publons	78	13.6

The scale of the respondents' presence on individual websites is evidenced not only by the percentage of people who have accounts on particular websites. Accounts with a profile photo and a description of research interests and publications are of particular interest. Such accounts testify to the actual activity on a given website and its deliberate completion – as opposed to profiles created automatically, without the participation and sometimes knowledge of the interested party. Detailed data on this subject is presented separately for each of the websites.

ACADEMIA.EDU

Two hundred ninety-four people had an account on Academia.edu, i.e. 51.6% of the study group of 570 scientists involved with social communication and media sciences. Much fewer, i.e. 145 scientists (49.3%), i.e. almost half of the account holders, completed them with a profile photo, and 152 people with bibliographic data on their publications, including 138 who posted full texts of their publications on this platform.

The total number of publications on Academia.edu (co)authored by scientists involved with social communication and media sciences in November 2020 was 2,775, of which 1,650 were full texts (Table 3). Considering the number of full texts of publications per one university employee, 96 people made full texts of 1 to 10 publications available on Academia.edu. On the accounts of 21 people, there was data on the number of publications in the range of 11-20; on the accounts of 12 scientists – in the range of 21-40; while 10 scientists published data (or full texts) about over 40 of their publications. On the other hand, 155 account holders did not include full texts of their publications. The corresponding data on the total number of publications on the website, i.e. not only full texts but also bibliographic information, amounted to, respectively: 81 people – from 1 to 10 publications; 29 – 11-20 publications, 27 – 21-40 and 15 – over 40 publications.

Table 3. Full texts of publications in the accounts of Academia.edu users in the study group (N=294).

No	Number of full texts of publications on Academia.edu	N=294	%
1	over 40 publications	10	3.4
2	from 21 to 40	12	4.1
3	from 11 to 20	21	7.1
4	from 1 to 10	96	32.6
5	no publications	155	52.7
	Total	294	100

On average, each of the respondents added publications on Academia.edu posted bibliographic data on 18.26 of their works. The median of this indicator was 9.5, and the mode was 1. This shows a dominant tendency among authors to post information about one publication, and rejecting extreme values, the median of the indicator oscillates below ten publications.

For full texts, the situation is slightly different; the central tendency is slightly lower. The mean is 11.87; the median is seven, and the mode is 1.

The respondents' accounts' total sum of page views, i.e. the Academia Total Views index, was 44,723.92 in November 2020 (Table 4). The largest group, i.e. 221 scientists (75.1% of all account holders), had the lowest pageview indices in the range of 1-100, 45 scientists (15.3%) had an index in the range of 101-500, 24 (8.2%) – in the range of 501-1,000, and only two people (0.7%) of Academia.edu users could boast about indices in the two highest ranges: 1,001-3,000 and above 3.000 (Table 3).

Table 4. The Academia Total Views index among the website users (N=294).

No.	Academia Total Views	N=294	%
1	from 1 to 100	221	75.10
2	101-500	45	15.30
3	501-1,000	24	8.20
4	1,001-3,000	2	0.70
5	above 3,000	2	0.70
	Total	294	100

For the Academia Total Views index, the mean is 152.12, the median – 13.5, and the mode – 2. This indicates a large variation in the number of pageviews among users, with accounts with two pageviews dominating.

RESEARCHGATE

Two hundred forty-six people had an account on ResearchGate (RG), 174 people had an account with a photo, and 211 people had information about their publications; slightly less because 178 people entered full texts into the system.

On the RG platform, we can find information on 3,712 publications studied, 2,390 of which are full texts of these publications (Table 5). As for the number of publications per a given (co)author, it was noted that the most significant number of people had no more than ten publications – 110 people (44.7% of all RG account holders), 55 people had 11-20 publications (22.3 %), 28 people had 21-40 publications (11.3%);. In contrast, only 18 scientists (7.3%) provided bibliographic information and/or full texts of over 40 of their publications on RG. 35 researchers (14.2%) did not have information about their publications in their profile.

Table 5. Number of publications on RG among account holders (N=246)

	Number of publications on RG	**N=246**	**%**
1	over 40 publications	18	7.3
2	from 21 to 40	28	11.3
3	from 11 to 20	55	22.3
4	from 1 to 10	110	44.7
5	no publications	35	14.2
	Total	246	100

The mean number of publications registered on RG by persons who account for 17.59, the median – 10, the mode – 1. However, in the category of full texts shared on RG, these values are respectively: 13.43 (mean), 7 (median), and 1 (mode). The central tendency indicates that in the case of publications (descriptions and full texts), authors usually register one text and the median of the number of shares is not high.

Few of the respondents, only 24, were active on this platform, i.e. asked or answered questions on the forum (Q&A section). The vast majority, i.e. 222 scientists from the study group, limited their activity only to adding information about publications and/or personal information (photo, affiliation, keywords).

One hundred sixty scientists made their RG scores index public (the total in the studied group of 570 people was 72) (Table 6). The vast majority of scientists (113, 45.9% of RG account holders) had this index in the range of 1-5, much less (35, 14.2%) in the range of 6-10. Higher indices were observed for individual people (in the range of 11-15 – 8 scientists (3.2%); in

the range of 16-20 – 1 person (0.4%). Only three people (1.2%) from the study group had RG scores above 20 in November 2020. However, 86 people (34.9%) did not have this index or did not make it public in their profile (table). The total sum of RG Scores in the study group was 862.65.

Table 6. ResearchGate Scores indices in the study group (N=246).

No.	ResearchGate Scores	N=246	%
1	no index	86	34.90
2	RG score from 1 to 5	113	45.90
3	from 6 to 10	35	14.20
4	from 11 to 15	8	3.20
5	from 16 to 20	1	0.40
6	RG score over 20	3	1.20
	Total	246	100

The mean value of RG scores was 5.39, the median – 3.83, the mode – 1.15. The central tendency of the indices is low and indicates that the RG scores of the respondents are not very diversified.

GOOGLE SCHOLAR

In November 2020, 246 scientists had a profile on Google Scholar (GS), i.e. 43.2% of all respondents (570), while 342 people, i.e. 56.8%, did not have a GS account.

Half of the GS account holders, 128 to be precise, enriched their account with a profile photo and a short description (e.g. keywords, affiliation, etc.). Two hundred thirty-two respondents had an account with a visible Hirsch Index and citations (Table 7).

Table 7. Hirsch Index on Google Scholar in the study group of users (N=246).

No.	Hirsch Index on Google Scholar	N=246	%
1	no index	14	5.60
2	from 1 to 5	181	73.50
3	from 5 to 10	41	16.60
4	from 11 to 15	6	2.40
5	from 16 to 20	1	0.40
6	over 20	3	1.20
	Total	246	100

The total sum of these indices (summary index) in the study group in November 2020 was 949, while there was a total of 39,507 citations at that time.

The mean number of citations of people who have an account on Google Scholar was 170.29, the median – 32.5, the mode – 2 (Table 8). Looking at the mean and the median, one can observe extremely high and low numbers of citations. The mean h-index value was 4.09, the median – 3, mode – 2. The h-index values are very similar.

Table 8. Citations on Google Scholar in the study group of users (**N=246**).

No.	Number of citations on Google Scholar	N=246	%
1	no citations	14	5.60
2	from 1 to 20	94	38.20
3	from 21 to 40	35	14.20
4	from 41 to 100	51	20.70
5	from 100 to 1000	48	19.50
6	over 1000	4	1.60
	Total	246	100

It is also worth adding that co-authors of publications were linked in 63 profiles of the respondents. In a more significant number of profiles, i.e. 210, co-authors were only visible on the list of publications.

SCOPUS

One hundred forty-eight people, i.e. almost 26% of all respondents, had at least one publication in the Scopus database, 78 of them also had an individual profile, and 70 had one publication without having a profile. On the other hand, the majority, i.e. 422 names, could not be found in this database.

The total number of publications authored and co-authored by the scientists studied amounted to 803 in November 2020, and they reached a total of 4,383 citations. The vast majority of scientists (136) had from 1 to 10 publications in the Scopus database. Only 12 people had more than 11, of which 5 had more than 21 (Table 9).

Table 9. Number of publications in Scopus in the study group (N=148)

No	Number of publications in Scopus	N=148	%
1	over 40 publications	2	1.30
2	from 21 to 40	3	2.10
3	from 11 to 20	7	4.70
4	from 1 to 10	136	91.80
	Total	148	100

The mean number of publications per author in Scopus is 5.46, the median is two, and the mode is 1.

The mean of citations is 67.48, the median is four, and the mode is 1 (Table 10).

Table 10. Number of citations in Scopus in the study group (N=148)

No.	Number of citations in Scopus	N=148	%
1	no citations	83	56.00
2	from 1 to 20	45	30.40
3	from 21 to 40	11	7.40
4	from 41 to 100	5	3.40
5	from 100 to 1,000	3	2.00
6	over 1000	1	0.60
	Total	148	100

The Hirsch index in the Scopus database was found in the case of 65 respondents (a total of 155), almost all (62 people) in the range of 1-5; the remaining three people had the HI in the ranges: 6-10, 11-15 and over 20 (Table 11). The mean value of the h-index in Scopus was 2.38, the median – 1, the mode – also 1. It can be concluded from the above that the central tendency of the HI for the respondents is low.

Table 11. The Hirsch Index in Scopus in the study group of scientists (N=155).

No.	Hirsch Index in Scopus	N=155	%
1	no index	83	56.00
2	Hirsch Index in Scopus from 1 to 5	62	41.80
3	from 6 to 10	1	0.67
4	from 11 to 15	1	0.67

5	from 16 to 20	0	0.00
6	HI in Scopus over 20	1	0.67
	Total	148	100

The HI mean is 2.38, the median and the mode are 1, respectively.

PUBLONS

Only 78 subjects were registered in the Publons database, linked to Web of Science. However, only a few had profiles with a photo (9 people), information about the Hirsch Index and citations (18 people), and reviews (12 people). In total, the database contains information on 41 reviews written by scientists from the study group. Bearing in mind the purpose of creating this website, i.e. encouraging scientists to review the works of their colleagues and make this work visible in their profile, we must say that the database enjoyed little popularity among the study group of scientists.

On the other hand, 36 scientists had their publications attached to the Publons account. It should be noted that they did not have to be publications indexed in Web of Science because, on Publons, you can add publications from other databases, also manually. Therefore, the total number of these publications was relatively large, amounting to 1,065, and the total number of citations was 3,241. Taking into account the number of publications per scientist, it was found that only one person had more than 40 publications (in fact, over 600). The number of publications in the range of 21-40 applied to 5 people and in the range of 11-20 to 7 people. Most, i.e. 23 people, had up to 10 publications recorded in Publons (Table 12).

Table 12. Number of publications in Publons among the studied users (N=78)

No	**Number of publications in Publons**	**N=78**	**%**
1	over 40 publications	1	1.20
2	from 21 to 40	5	6.41
3	from 11 to 20	7	8.90
4	from 1 to 10	23	29.40
5	no publications	42	53.80
	Total	78	100

The mean number of publications per author with publications on the website is 28.78, and the median is seven, and the mode is 1. For the reviews, the mean is 3.42, and the median and mode are 1, respectively.

According to citations per scientist, 12 out of 18 people had up to 20 citations, three people in the range of 41-100, two in the range of 100-1,000, and one person had more than a thousand citations (Table 13). After calculating the mean (180.06), the median (9), and the mode (1) of citations, it can be concluded that the number of citations varied considerably, but one citation dominated.

Table 13. Number of citations in Publons among the studied users (N=78)

No.	Number of citations in Publons	N=78	%
1	no citations	14	5.60
2	from 1 to 20	94	38.20
3	from 21 to 40	35	14.20
4	from 41 to 100	51	20.70
5	from 100 to 1000	48	19.50
6	over 1000	4	1.60
	Total	246	100

The total Hirsch Index visible, as mentioned, in the case of 18 people was 72. The vast majority (15 people) had the HI in the range of 1-5, one person in the range of 6-10, and one in the range of 11-15. One researcher in the study group had the HI in the Publons database of more than 20 (Table 14).

Table 14. Hirsch Index in Publons in the study group of users (N=78).

No.	Hirsch Index in Publons	N=78	%
1	no index	60	76.90
2	Hirsch Index in Publons from 1 to 5	12	15.40
3	from 6 to 10	0	0
4	from 11 to 15	3	3.80
5	from 16 to 20	2	2.60
6	HI in Publons over 20	1	1.30
	Total	78	100

The mean of the HI for the study group is 4, the median is two, and the mode is 1.

PRESENCE OF RESPONDENTS ON THE WEBSITES

As shown in Figure 1, the group of respondents with one account is the largest – here Academia.edu (74 accounts, which gives 46.25% of all persons with one account) dominates (Figure 2), followed by Google Scholar (25%) and Research Gate (19.3%).

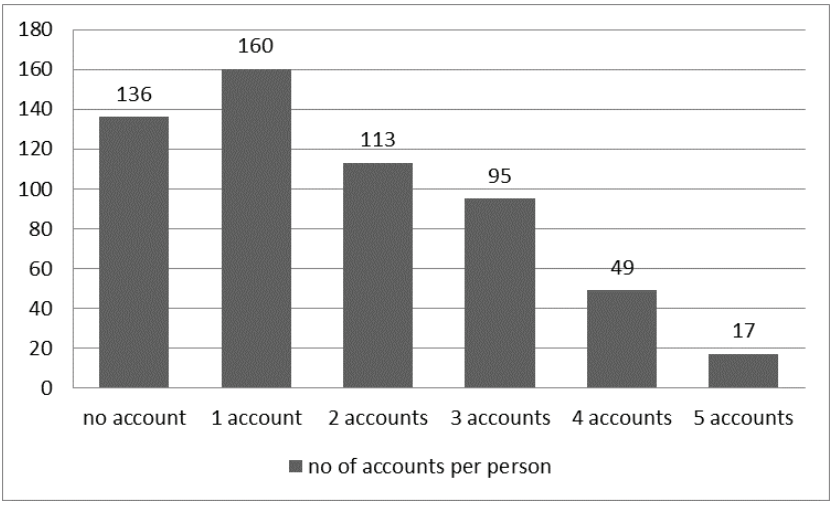

Figure 1. Respondents according to the number of accounts held (N=570)

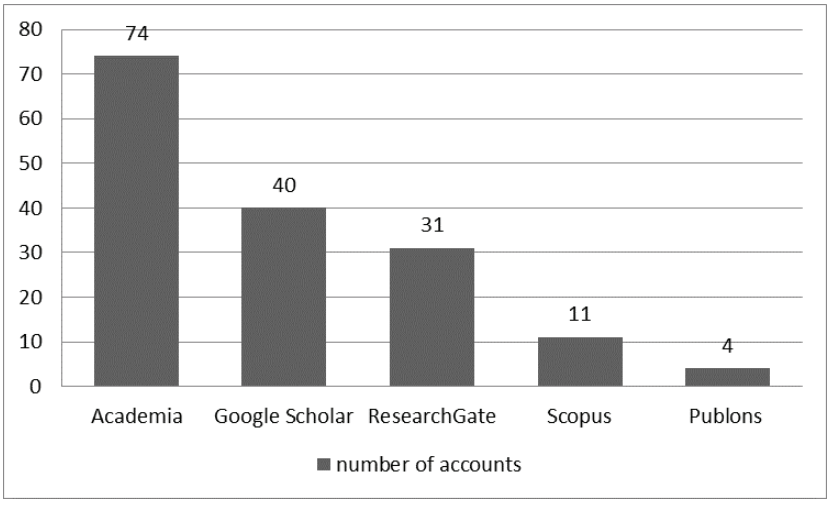

Figure 2. Respondents having one account (N=160) in individual websites

Among the holders of 2 accounts (N=113), the most popular combination is ResearchGate and Academia.edu (30% of owners of 2 accounts), followed by the combination of Google Scholar and Academia.edu (25.6%) as well as of Google Scholar and ResearchGate (22.1%) (Figure 3).

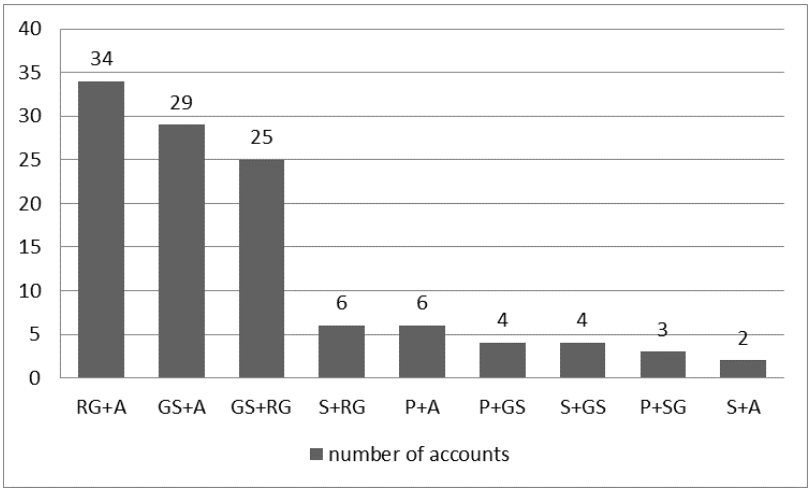

Figure 3. Respondents having two accounts (N=113) according to the websites

Among people who have three accounts out of 5 studied websites (Figure 4), the Google Scholar + ResearchGate + Academia.edu combination is dominant (65.3% of respondents from this group). They are again the most popular websites. It may be interesting that in the following combinations, Publons appears next to them, and in the next ones also Scopus.

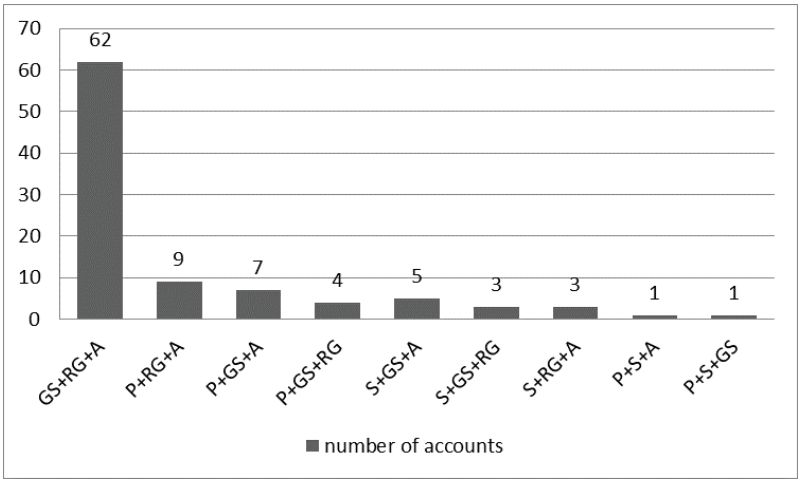

Figure 4. Respondents having three accounts (N=95) according to the websites

Holders of 4 accounts account for 8.6% of the entire sample (Figure 5). The most common combination is a combination of Publons, Google Scholar, ResearchGate, and Academia.edu – 55.1% of this group uses it. Interestingly, most of this group is divided when it comes to using Publons and Scopus – only in the last two combinations (8 people in total), we are dealing with selections taking into account both of these websites.

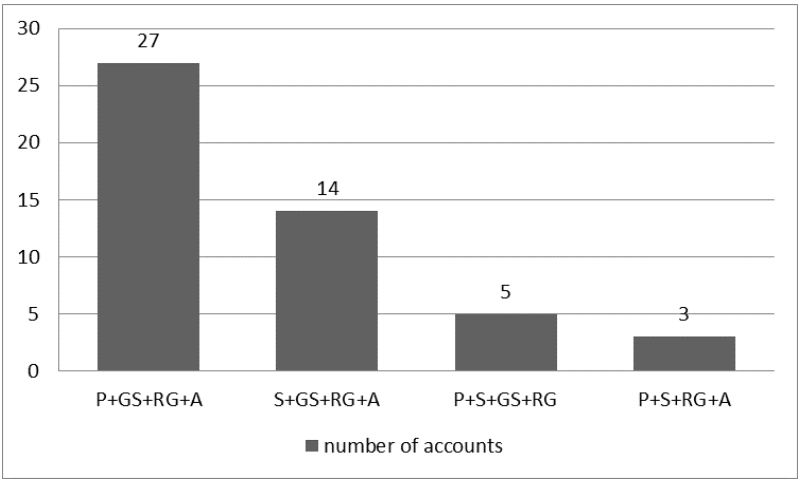

Fig 5 Respondents having four accounts (N=49) according to the websites

DISCUSSION

Academia.edu, as already mentioned, turned out to be the most popular website among the respondents, which is confirmed by research results (Ortega, 2015, 2017; Van Noorden, 2014), indicating greater interest in it among representatives of humanities and social sciences.

The results of previous research on Polish academics involved with social communication and media sciences were also partially confirmed on a larger sample (Białka, 2019; Iwańska-Cieślik, 2016; Kowalska-Chrzanowska & Krysiński, 2020). It was found that 76.2% of 570 respondents have accounts on at least one website, which can be interpreted as an increase in interest (sometimes also forced by top-down guidelines) in the presence of scientific websites.

The differences between the websites in terms of activity on accounts and informing about publications are interesting. On Academii.edu, apart from having a profile, half of the respondents do not publish their publications. But on Research Gate, only 14.2% of respondents have an empty account, and almost a half, i.e. 44.7%, posted 1-10 publications on it.

Compared to the above data, a minor part of the study group has an account in Scopus. Most of them (91.8%) have indexed – as in Google Scholar – between 1 and 10 publications in it. More extensive collections relate to isolated cases.

The people also dominate Publons with 1-10 publications on the website (29.4% of account holders). In addition, Publons provides an option beneficial for scientific text reviewers, which consists of disclosing the number of reviews performed, thus receiving various badges of great activity. However, only a few Polish researchers have used it – according to the obtained results, and it was only 12 people.

It seems that activity on scientific websites corresponds to publishing activity and international scientific cooperation. A minor part of the respondents publish more and at the same time are more active on scientific websites – in terms of quantity (number of accounts) and quality (archiving works, also other forms). Most scientists publish less and use the websites less often.

Information on citations and the Hirsch Index enables analyzing the impact of publications posted on the analyzed platforms. It is available on GS, Scopus, and Publons. Google Scholar has a different function than RG and Academia.edu, not allowing files to be archived but calculating the impact index, the so-called h-index. Most of the respondents (73%) who have an account on this website have a Hirsch index of 1-5, the second largest group (16.6%) – between 5 and 10. In the studied group, 232 respondents out of 246 present on this website had an account in Google Scholar with a visible Hirsch Index and citations, i.e. over 94% of authors.

Looking at the entire study population (N=570), this group constitutes 41% of all respondents. In the Scopus database, 65 of 148 respondents who had publications there (approx. 44%) had citations. This database is less numerously represented in the study group, and citations concern only 11% of the entire population. This means that still, relatively few representatives of the newly created scientific discipline in Poland publish in international journals indexed in the Scopus database. Publons combines the functionalities of all the above websites, i.e. it enables registration of publications and calculates the Hirsch Index. In Publons, of the 36 scientists who had publications under their account, 18 (50%) had citations. This proves that this channel of scientific communication is still rarely used, also in the field of showing the impact. Such information can be obtained from about only 3% of all scientists included in the study. It must also be admitted that the sense of having an account in Publons is to some extent related to having publications in Web of Science, which has far fewer journals in the field of humanities and social sciences than Scopus. The Hirsch Index in Publons is calculated only based on citations from the Web of Science Core Collection.

Google Scholar has the most significant role in providing information on the impact of publications posted by the study group of Polish scientists. This website shows the impact indices of the most significant number of authors and publications. So we can talk about the great popularity of the platform in this respect among the communication science community in Poland. In addition, Google Scholar makes it possible to identify the most popular and influential authors and sources in a given discipline (e.g. journal titles). The popularity of Google Scholar in the study group of Polish scientists is probably influenced, among others, by the ability to manually add your publications there and indexing Polish-language literature, or more specifically, publications absent in Scopus. Therefore, the impact indices, such as the Hirsch Index, are significantly higher for Polish scientists on this website than in the Scopus database.

Publons is less popular and less used to show the impact of publications. In turn, the Scopus database, due to its specificity, shows more publications than Publons but a lower citation indicator than the previous two.

The impact index of publications is also reported by RG scores, a specific index, as it records the impact and popularity of a given author, which also means the researcher's interactions with others. As already mentioned, the RG Scores is not high among Polish respondents, which may result from the low popularity of the platform and the low activity of the Polish media and communication community there.

In the light of the obtained results, 160 scientists (65%) out of all those who had an account made their RG Scores index public, which proves that information on the impact and popularity of the publications of the studied scientists was obtained by 28.1% of the entire group. It can be concluded that Researchgate also serves to some extent as a tool to show the impact of a scientist and his/her publications. In Academia.edu, the impact index is Total Views for all respondents and the number of accounts with a certain number of views. The website is very popular among the respondents, the platform shows views of all accounts. So far, the largest group, i.e. 221 scientists (75.1% of all account holders), had the lowest pageview indices (in the range of 1-100). It can therefore be assumed that Academia.edu is a place where the impact (popularity) of a researcher is exposed. In the case of Polish scientists involved with communication sciences, so far, the popularity is not high. Perhaps it will start to grow significantly parallel to when the respondents have their accounts there and the development of the content available.

The number of publications was analyzed on the websites, i.e. Academia.edu, RG, Publons, and the Scopus database. The mean number of publications per author was calculated. It turned out that this statistical mean did not differ much for the first two websites (18.26 and 17.59, respectively). Slightly more publications are posted per author in Publons

(28.78), which may result from the website's lower popularity among people publishing less. However, in the Scopus database, the mean number of publications per author is only 5.46, which probably results from the nature of the database.

Meanwhile, the median (the middle value of the number of publications) on Academia.edu and RG fluctuates around ten and is lower on the other platforms (Publons 7, Scopus 2). Looking at these results, it can be concluded that the number of publications by individual authors on all websites is relatively little diversified. There are no very significant extremes. It should also be noted that everywhere the mode is one, which means that most people posted one publication. The situation is similar for full texts. The only difference concerns slightly lower statistical means for the numbers of texts (11.87 in Academia.edu, 13.43 in RG) and the central tendency (7 on both websites). In turn, in Publons, there are reviews with low index values (the mean 3.41 and 1 – the other two measures, respectively). The central tendency indicates that authors usually register one text in the case of publications (descriptions and full texts), and the median of the number of shares is not high.

For Academia Total Views and RG scores, the situation is completely different. For the former, the mean is 152.12, the median is 13.5, and the mode – 2. This indicates a substantial variation in pageviews among users and accounts with two pageviews dominate. In turn, the mean for RG scores was 5.39, the median – 3.83, the mode – 1.15. The central tendency of the indices is low, and it indicates that the RG scores of the respondents are not very diversified.

A very diverse situation occurs in terms of citations. The mean for the number of citations in people who have an account in Google Scholar was 170.29, the median – 32.5, the mode – 2. The mean of citations in Scopus is 67.48, the median is 4, and the mode is 1. Looking at all these indices, one can state extraordinarily high and low numbers of citations and the dominance of works with 1 or 2 citations. The h-index values are very similar in all websites showing citations. Everywhere the mean values do not exceed the level of 4.1. The medians are three, and the modes are 1 or 2.

The analysis of statistical indicators showed little interest of most of the respondents in publishing their publications on the websites. However, few authors publish very actively on the platforms studied. This differentiation is evidenced by a deficient mode and a certain discrepancy in the statistical mean and the median. In the case of popularity and citation indicators, the differences between these few authors and the rest are enormous.

Different levels of activity and interest in individual websites and differences in the impact of the works by different authors, reflected by the analyzed indicators, may also result from differences in the period of ope-

ration and the nature of social networking websites for scientists. Academia.edu and ResearchGate have been operating since 2008, Google Scholar Citations since 2011, Publons since 2012. New solutions are usually used first by a group of "pioneers" before they are widely used in a given community, hence probably the least interest in Publons in the study group, i.e. the youngest of the analyzed websites. Although Scopus is the oldest of the databases, it has existed since 2004, not a social networking site. The mere fact of having a researcher's profile depends on the number of indexed publications (more than one).

Different levels of interest in the websites may also result from their different functionalities: the possibility of not only depositing works but also obtaining digital copies of them for individual use from authors, which plays a large role with sometimes limited access to foreign publications; as well as consulting research ideas, direct communication with specialists in a given field. An important function of these websites is also building the image of a scientist online, which on the international arena is influenced by bibliometrics (number of citations) and altmetrics (number of views, downloads of the text, or the number of people following a given scientist's profile).

Basic activity, understood as having an account on individual websites, was not surprising. The largest group of respondents had only one account – Academia.edu dominated here, followed by Google Scholar and ResearchGate. The situation is more interesting among holders of two accounts (N=113). The most popular combination here is ResearchGate and Academia.edu, followed by Google Scholar and Academia.edu, then Google Scholar and ResearchGate. Thus, the most easily accessible, the most popular, the longest-functioning websites, allowing for relatively easy sharing of publications and file exchange, dominated. Among people with three accounts, the combination of Google Scholar with ResearchGate and Academia.edu dominated. They are again the most popular websites. Interestingly, in the subsequent combinations, Publons appears next to them, and in the next ones also Scopus. Holders of four accounts constitute only 8.6% of the entire sample. The most common combination is a combination of Publons, Google Scholar, ResearchGate, and Academia.edu. Most of this group is divided in terms of using Publons and Scopus – very few people are on both.

CONCLUSIONS

The article discusses the use of five websites for scientists: Academia.edu, ResearchGate, Google Scholar, Scopus, and Publons by Polish scientists involved with social communication and media sciences. It was

found that Academia.edu was most popular in the analyzed period, i.e. at the end of 2020, and the least popular was Publons.

The limitation of the research was, among others, the selection of the study group, i.e. covering only one scientific discipline from only one country, which makes it impossible to compare the obtained results and present them against a wider background. Moreover, the analysis involved only the most basic indicators of this group of Polish scientists on social networking sites.

Future research could include an updated number of researchers assigned to social communication and media sciences. In addition, a similar characterization could be made for other social media used for scientific communication, such as Twitter, LinkedIn, and Facebook. It is also worth observing how the possibility of linking accounts with ORCID (currently available in Scopus) will affect activity on the platforms. It is also worth comparing the activity of scientists operating on several websites at the same time. Certainly, it will also be worth checking whether variables such as gender, academic degree, or subdiscipline (targeting of research interests) impact the respondents' activity.

Diachronic research would also be needed to verify how the presence and activity on the websites change over time, which become more important and popular and less used by respondents. Qualitative research will also be important, showing to what extent it depends on increasing one's scientific achievements and to what extent on individual experiences of using social networking sites and the attitude of respondents to activity on such social networking sites.

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KORZYSTANIE Z ACADEMIA.EDU, RESEARCHGATE, GOOGLE SCHOLAR, SCOPUS I PUBLONS WŚRÓD POLSKICH BADACZY Z NAUK O KOMUNIKACJI SPOŁECZNEJ I MEDIACH

SŁOWA KLUCZOWE: Academia.edu. Google Scholar. komunikacja naukowa. nauki o komunikacji społecznej i mediach. ResearchGate. Scopus. Publons.

ABSTRAKT: **Cel artykułu** – próba określenia stopnia obecności, aktywności oraz wielkości wskaźników bibliometrycznych i altmetrycznych polskich badaczy z nauk o komunikacji społecznej i mediach w serwisach naukowych: Google Scholar, ResearchGate, Academia.edu, Publons i Scopus, oraz celów ich wykorzystania. **Metody badań** – badania ilościowe grupy 570 akademików z 20 różnych uczelni. W procesach doboru próby zastosowano analizę danych zastanych Zebrane dane poddano następnie analizie statystycznej. **Wyniki i wnioski** – Intensywność i sposób korzystania z serwisów zależą po części, od okresu ich działania, różnic w funkcjonalnościach, ale także, od aktywności publikacyjnej (intensywność, język i miejsce publikacji) i naukowej (udostępnianie bibliografii i tekstów w serwisach, komunikacja i wymiana informacji, współpraca) badaczy.