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Aleš Pogačnik

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Science should be open, right?

A survey conducted by the Research Centre of the Slovenian Academy of Sciences and Arts (ZRC SAZU) on the use of academic literature and open science

Aleš Pogačnik

Translation : Petra Zaranšek and Dean Devos

Introduction

- 1 I am the head of Založba ZRC (English: “ZRC Publishing”), a unit of *Znanstvenoraziskovalni center Slovenske akademije znanosti in umetnosti*, i.e. the Research Centre of the Slovenian Academy of Sciences and Arts (short: ZRC SAZU), which comprises eighteen institutes and is one of the largest scientific research institutions in Slovenia. As the only professional editor employed by ZRC SAZU, I coordinate and provide instructions with regard to a fairly broad range of publications. The annual output of ZRC SAZU is 60–90 original scientific monographs and 25–30 issues of its 15 journals (of which two pertain to the field of popular science). Between 80 and 90 percent of the texts are written in Slovene. Within the framework of Založba ZRC, the texts are issued by individual institutes, whose researchers act as editors organising the content (i.e. they edit and review their own publications), while Založba ZRC organises applications to calls for tenders, publication (in print or digital format), sales, distribution, and promotion.
- 2 ZRC SAZU is a public institution, which—unlike universities—must secure most of its funding from projects, sponsorships, and other sources. Our publishing activities are largely financed by infrastructural funds and state subsidies. In Slovenia, subsidies for academic publishing are currently granted by *Javna agencija za raziskovalno dejavnost Republike Slovenije*, i.e. the Slovenian Research Agency (hereinafter referred to as: ARRS), whose subsidies cover 20–100% of the direct production costs, comprising layout, translation, proofreading, printing, and electronic publication.
- 3 In accordance with EU guidelines, ARRS advocates for and supports open access and has set itself the task—as of autumn 2018—of realising the open science concept in a similar manner as elsewhere in Europe. Yet, the situation regarding scientific publishing in

Slovenia—whose population is a mere two million people—could be described as somewhat special:

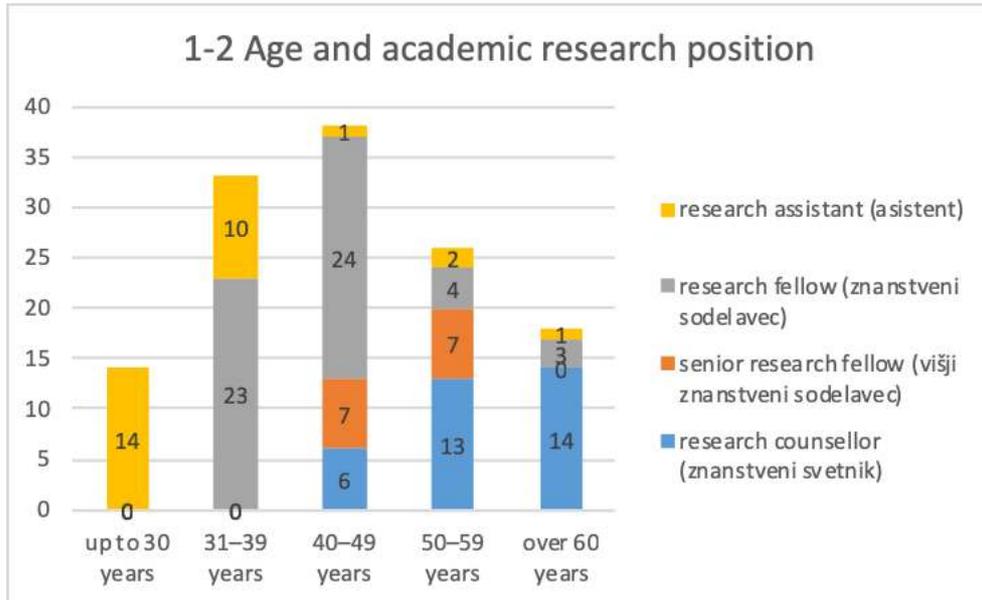
- In Slovenia, science funding is somewhat strongly linked to certain bibliometrics applied by ARRS as a combination of its own method, data from Scopus and WoS, as well as data from the Slovene national library catalogue;
 - Almost half of the scientific texts written by Slovene authors are published by foreign journals/publishers, and, according to ARRS, Slovenia “has, since 2004, been among the top 10 percent of countries with the most frequently cited publications per million inhabitants, which is above the EU average” (ARRS 2018a, 45);
 - For a number of years now, the state has allocated twice as much funding for the purchase of foreign content as compared to the subsidies granted to Slovene publications;
 - Due to the publishing tradition, funding from subsidies and other sources, Slovene publishers of academic literature do not charge APCs/BPCs;
 - In Slovenia, academic publishing is strongly integrated into general trade publishing, to which it is comparable as regards the number of copies published (rarely exceeding 300) as well as pricing; however, publishers of academic literature cannot survive merely by selling their publications, as such are sold almost exclusively within Slovenia;
 - Digital content is not a product that can be sold by Slovene general trade publishers, let alone academic publishers;
 - Since at least 2010, Slovene academic publishers have striven to ensure free access to as much of Slovene content as possible.
- 4 When it was announced in Slovenia that the main financer of science in Slovenia, i.e. ARRS, had joined the EU’s Plan S, it seems that certain people preparing the policy at government agencies (ministries or ARRS) were under the impression that Slovenia had been practicing open science for a number of years, i.e. that the idea had already been so strongly present in Slovenia that it only needed certain cosmetic corrections such as the state funding of publications in foreign journals with golden open access, or the signing of the DORA declaration or the Leiden Manifesto, and it could then be immediately implemented in practice. At the moment, however, this transition does not seem so simple, the question also being whether the direction it is going in is the right one. However, this is not the place for such a discussion.¹
- 5 The objective of the survey² conducted at ZRC SAZU from 18–26 October 2018 was to obtain researchers’ opinion on the use of academic literature and modern technologies, as well as their opinion on open science and the publication of academic literature in general. I did not model the questionnaire upon any other survey, as it was compiled solely for the internal purposes of ZRC SAZU.³ I would like to emphasise that the results of the survey do not represent the official opinion of ZRC SAZU. However, in my opinion, the sample was large enough and the responses provided can form the basis for interesting conclusions, which often deviate from what is or was expected. Therefore, it might be that similar results would be obtained by carrying out the same survey in other similar institutions where a strong conviction prevails as to open science already being an established fact.

Survey respondents

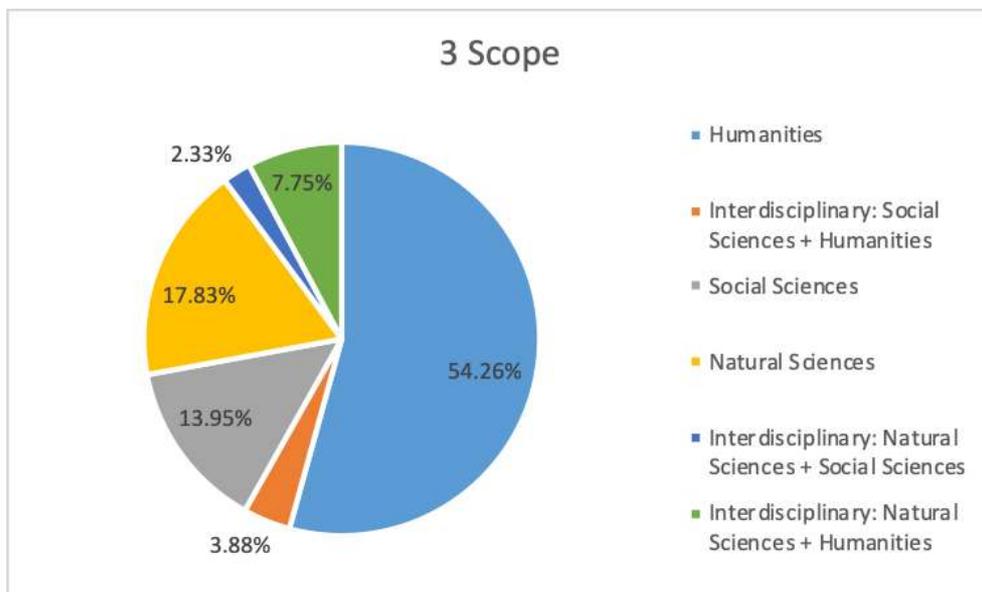
- 6 The questionnaire consisted of 24 questions: 3 questions of a general nature aimed at profiling the respondents, 11 questions related to the research habits of the respondents,

and 10 questions related to publishing. The survey was anonymous. Of the 263 questionnaires sent to researchers from ZRC SAZU, 129 completed surveys were received, representing nearly half of all the researchers employed there as of November 2018. Distribution across academic research positions (**Question 1**) was as follows: 33 research counsellors (25.58%), 14 senior research fellows (10.85%), 54 research fellows (41.86%), and 28 research assistants (21.71%). Distribution across age groups (**Question 2**) was as follows: the most numerous age group was 40–49 years of age (29.46%), followed by 31–39 (25.58%), 50–59 (20.16%), “above 60” (13.95%), and “30 and below” (10.85%).

Questions 1-2: Age and academic research position



- 7 As regards their fields of research, the majority of the respondents selected the humanities (**Question 3**). Furthermore, if those selecting an “interdisciplinary” option were placed in one of the three main disciplines, humanities would stand out even more prominently, with 62.42% of the respondents seeing it as their primary research field. The shares of the other two fields, i.e. the social sciences and natural sciences, were equal, both amounting to 18.79%. This roughly corresponds to the ZRC SAZU profile. In an attempt at further simplification, I divided the respondents between the two traditionally established groups: 81.21% of persons pertain to the combined field of “social sciences and the humanities” (hereinafter referred to as SSH) as compared to 18.79% pertaining to the combined field of “science, technology, and medicine” (hereinafter referred to as STM).

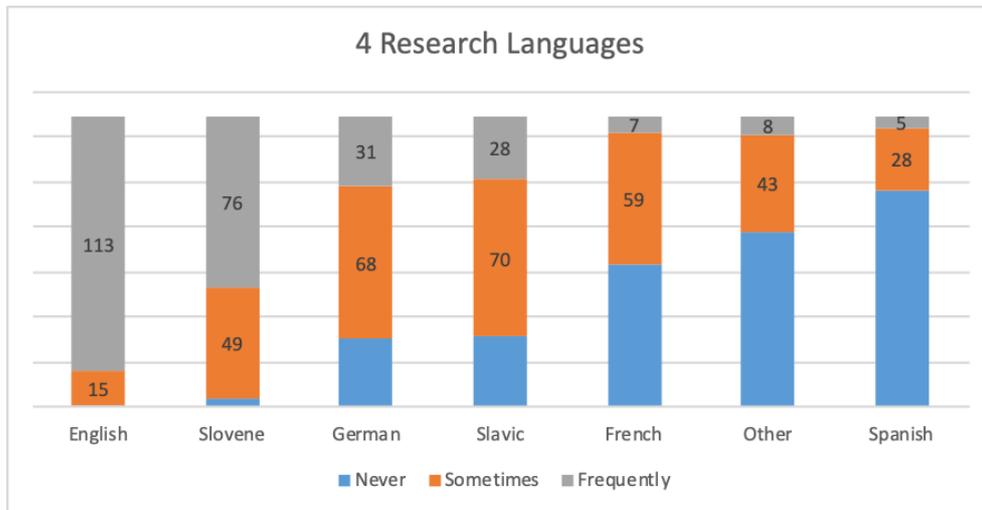
Question 3: Scope

- 8 The sample shows a somewhat even distribution across the three sub-groups formed according to the above-mentioned three parameters (i.e. title, age, research field). The only apparent correlation that stands out is the that between age and the respondents' academic research position: higher positions are correlated with an older age of the respondent, which is why, in the end, only the sub-groups related to age (5) and research field (2) were taken into account as regards the results of the survey. Any noticeable deviations of one group in comparison with others are noted in the commentary. For the most part, the graphs included in this paper do not show any such deviation, the only exception being the final question, (Question 24), which is a general question about publishing.

Academic literature

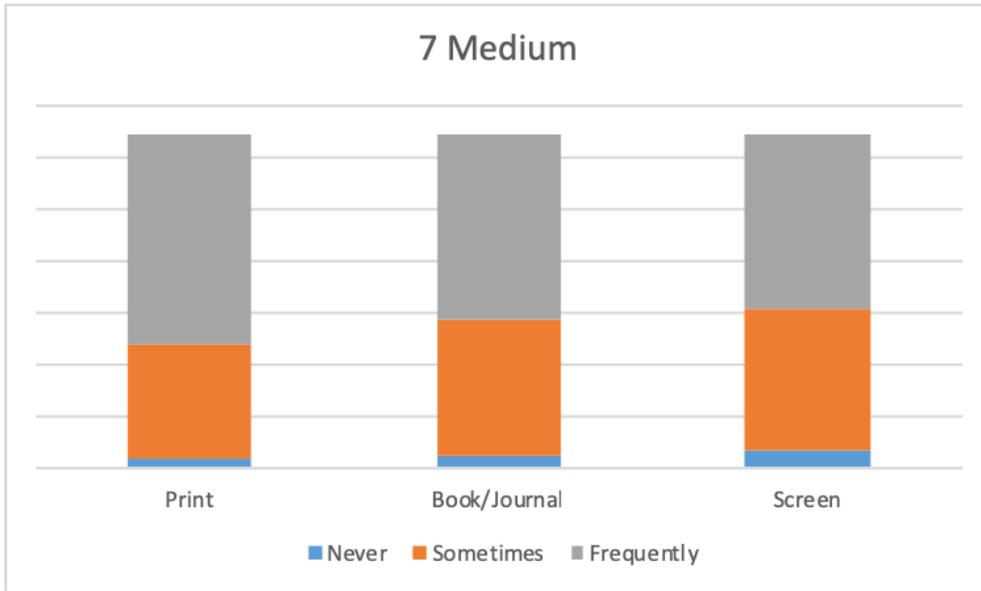
- 9 For the most part, researchers read academic literature in the English language, as demonstrated by the option "frequently" being selected by almost 87.6% of the respondents (**Question 4**). English is used more commonly than Slovene, which ranks second as regards use, with more than half (58.9%) of the respondents frequently reading academic papers therein. In that regard, only the youngest age group ("30 and below") more frequently selected the option "sometimes" (55.6%) than the option "frequently" (44.5%). An almost equal number of respondents read literature in German or one of the Slavic languages, as demonstrated by the option "sometimes" selected by slightly more than 50% of the respondents. Other languages, French and Spanish included, are rarely used, with less than 10% of respondents using them frequently.

Question 4: Research Languages



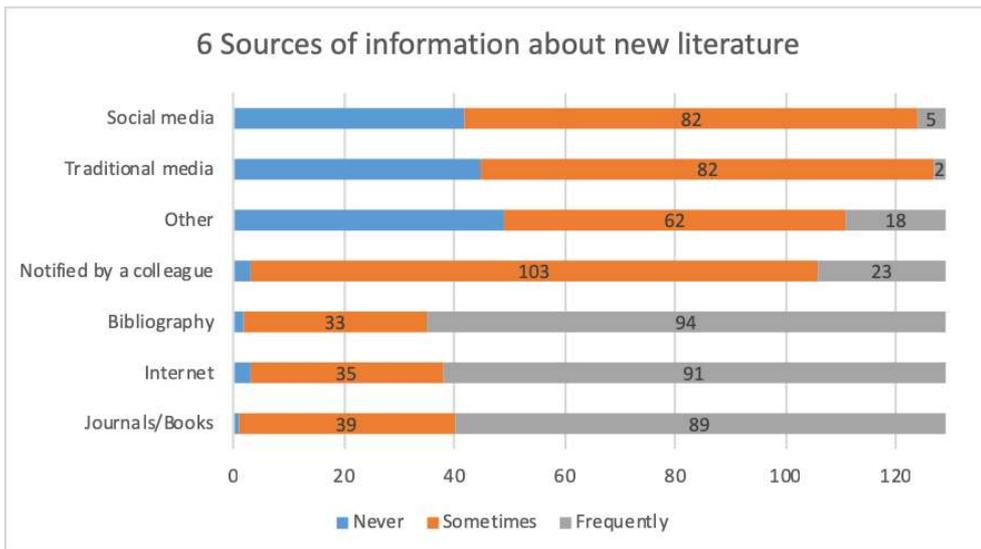
- 10 The respondents report spending an average of 45.41 hours a month reading academic literature, the minimum being 4 hours and the maximum 300 hours (**Question 5**). For the most part, academic literature is still read on paper (**Question 7**), however, most frequently not in one of the classic printed formats such as monographs or journals, but as a printout of a digital version. Classic print formats are still more important than reading a digital version. The results obtained from sub-groups divided according to respondents' age show that the option "frequently" selected with regard to reading printed books and journals is prevalent in the age groups above 40. Both younger age groups most frequently selected the option "sometimes" with regard to classic printed texts, i.e. 48.48% of the "31-39" age group selected "sometimes" with regard to reading a digital version and 51.52% with regard to reading classic printed texts; for comparison, 21.43% of the "30 and below" age group selected "sometimes" with regard to reading a digital version, while 50% thereof selected this option with regard to reading classic printed texts. With regard to classic printed texts, the STM group selected the option "sometimes" considerably more often than the option "frequently", i.e. 58.05% versus 29.03%, which is a similar result as that obtained for the youngest age group.

Question 7: Medium



11 For respondents, the most important source of information (**Question 6**) as regards reading academic literature is the internet, which corresponds to the above-mentioned conclusion on the format of academic literature. To a slightly lesser degree, the respondents obtain such information by following the academic literature in their field and reviewing the bibliographies of the papers read—these two approaches are represented equally. Sometimes such information is obtained via social networks, and less commonly from colleagues at work or from the general media.

Question 6: Sources of information about new literature

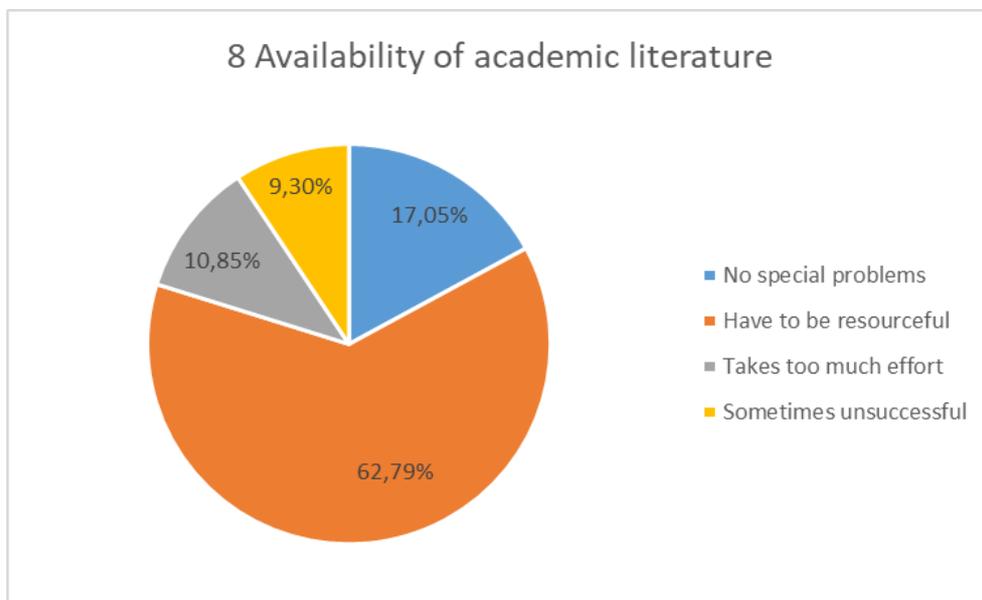


12 Responses across different age groups were very similar, with only slight deviations noticeable as regards research fields, e.g. the SSH group had a notably higher share of respondents (43.88%), as compared to 19.35% for the STM group, who stated that they never use social networks. It might be understandable that the STM group would to a far lesser degree obtain information about interesting academic literature from the general

media (television, newspapers, etc.), as is evident from the option “never” being selected by almost half (48.39%) of the STM group as compared to one third (30.61%) of the SSH group.

- 13 A great majority of the respondents connect access to academic literature (**Question 8**) to personal resourcefulness. During socialist times (up to 1991 Slovenia had been part of Yugoslavia) this was a very important “virtue.” Ranked second is the opinion that access to academic literature is not an issue at all. About 20% of the respondents see access to academic literature as a problem as they either cannot obtain such literature, or it takes too much of an effort to do so. Resourcefulness in obtaining academic literature is most frequently deemed to be necessary by the two largest age groups, i.e. by 73.68% of the “40–49” and 76.92% of the “50–59” age groups. Furthermore, only the “50–59” age group had no respondents that stated that certain academic literature is unobtainable.

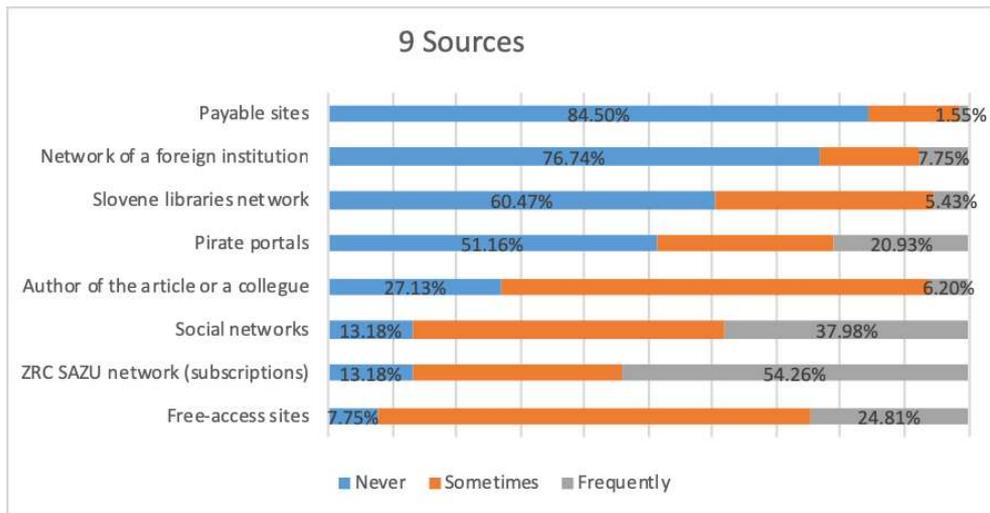
Question 8: Availability of academic literature



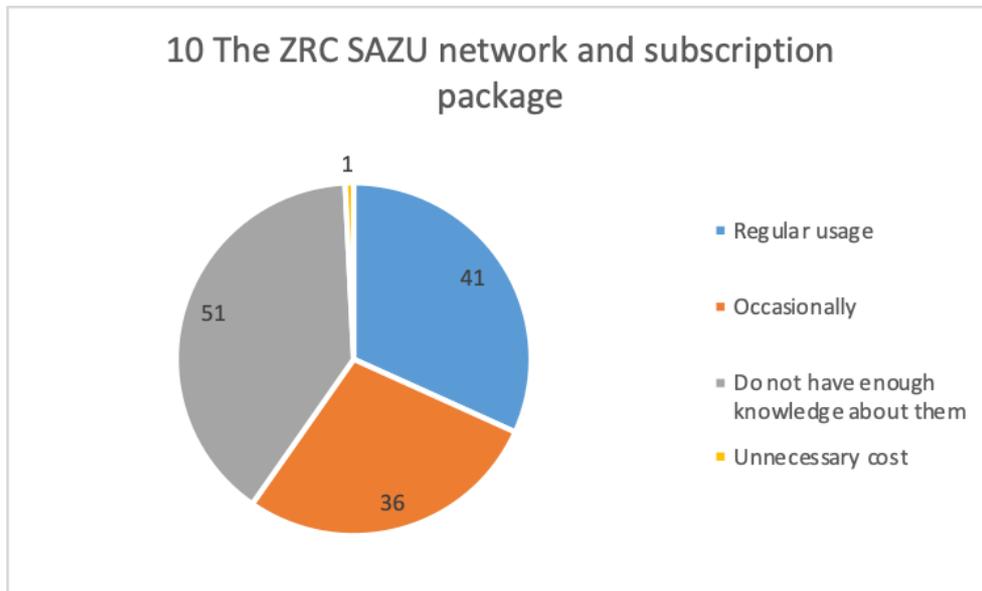
- 14 In brief, nearly 80% of respondents were of the opinion that access to academic literature is organised well. But how do they gain access to it (**Question 9**)? The findings regarding this question are presented below:
- the great majority of respondents never pay for access to a paper;
 - academic literature is most frequently accessed via the following three sources, which all respondents use “frequently” or “sometimes”: free internet sources (92.27%), the ZRC SAZU network (86.82%), and academic social networks such as ResearchGate, Academia.edu, and thematic Facebook groups (86.82%);
 - more than half of the respondents in every age group frequently use the ZRC SAZU network, through which they can access the content ZRC SAZU subscribes to;
 - academic social networks are also very frequent occasional sources, regarding the use of which not a single respondent from the STM group selected the option “never,” while 17.35% of the respondents in the SSH group did;
 - the second most frequent occasional source (immediately after free internet-based content) are authors of academic papers and colleagues who have better access to e-content;

- slightly more than half of the respondents never search for academic papers on pirate portals; 50% of the respondents in the youngest age group, i.e. “30 and below,” use pirate portals frequently;
- a large majority of respondents does not need to seek academic literature in any other Slovene library (50–60% of respondents across all groups selected the option “never” with regard to this question), or in the networks of other institutions (73–78% across all age groups).

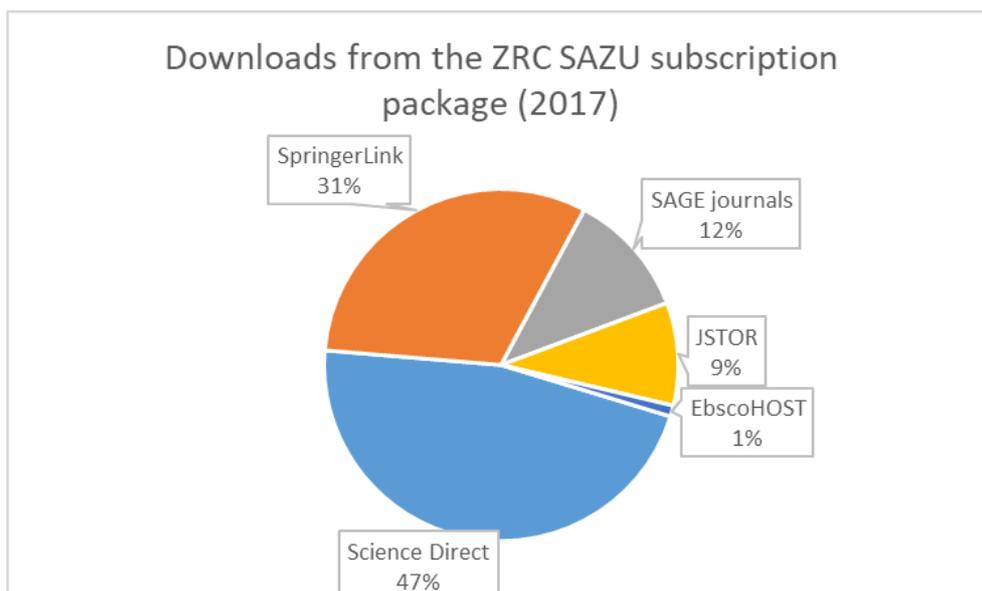
Question 9: Sources



- 15 Although ZRC SAZU’s subscription packages of ZRC SAZU represent an important source of academic literature, the answers to **Question 10** reveal that most respondents possess insufficient knowledge about the existence of such collections in the ZRC SAZU network. The groups that stand out in this respect are the two youngest age groups (“30 and below” with 64.29%, and “31–39 years old” with 51.52%) and the oldest age group, i.e. “above 60,” with 44.44%. One third of all respondents regularly use collections of academic papers accessible only through ZRC SAZU computers, while one third of the respondents use such occasionally. Only one respondent sees this service as unnecessary.

Question 10: The ZRC SAZU network and subscription package

- 16 Following an assessment of collections with respondents assigning a score from 1–5 (**Question 11**), the highest average score was ascribed to the JSTOR collection (3.36), which was followed by SpringerLink (3.03; the only collection offering books in ZRC SAZU's subscription packages as well), ScienceDirect (3.02), Sage (2.6), and EbscoHOST (2.18). A comparison of these results with the statistics regarding the download of academic papers from the ZRC SAZU's subscription packages in 2017 reveals a different ranking as well as different ratios (only downloads in .pdf format were taken into account, while viewing sites in .html format was not taken into consideration).

Downloads from the ZRC SAZU subscription package (2017)

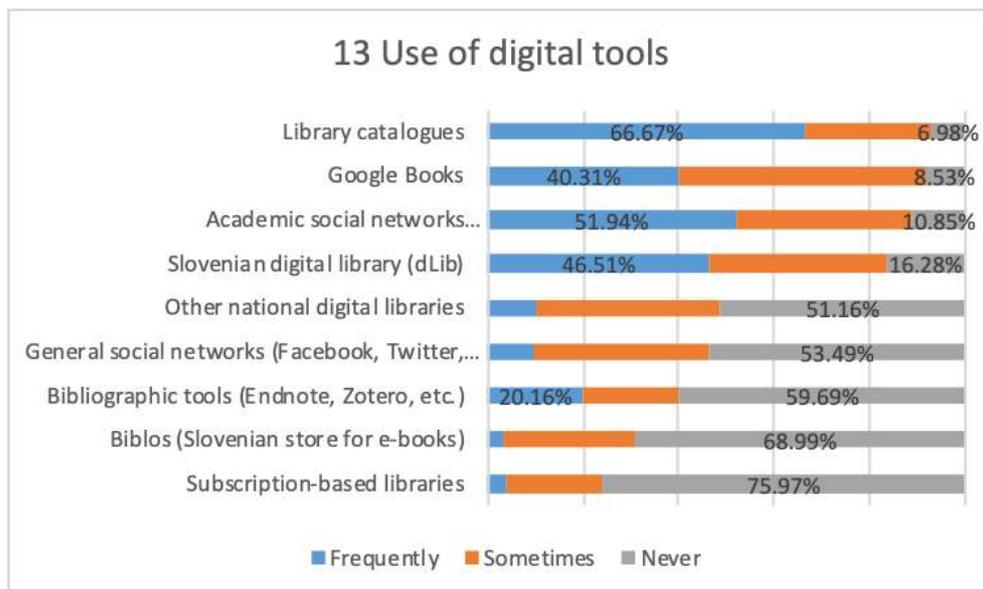
- 17 Such incongruence could be explained by the answers to Question 9, where respondents listed the internet and academic social networks as two very important sources of academic literature. Although the majority of respondents do not know specifically what

individual collections offer—as they mix information with sources obtained in a different manner—most of them (61.11%) are still of the opinion that the content available in internet-based collections is sufficient (**Question 12**). The 33 respondents who listed specific content collections they miss cited several American journals (especially those of the Wiley and Taylor & Francis publishing houses) and broader subscription packages of certain collections that ZRC SAZU already subscribes to (primarily JSTOR). Altogether, the respondents submitted 19 proposals with regard to further purchases of academic literature (**Question 14**), which will each be reviewed individually and considered by ZRC SAZU’s committee responsible for foreign literature purchases.

18 As part of the group of questions related to the use of academic literature, I was further interested in how familiar respondents are with certain digital tools that facilitate access to literature and bibliographic data (**Question 13**); the exact formulation of the question was “How often do you use...”:

- the majority answered “frequently” with regard to the following: library catalogues (COBISS, WorldCat, etc.), academic social networks (ResearchGate and Academia.edu), and dLib (Digital Library of Slovenia);
- the majority answered “never” with regard to the following: commercial publishing services (Scribd, Readly, etc.), Biblos (a Slovene e-book store), bibliographic tools (Zotero, EndNote, etc.), general social networks (Facebook, Twitter, etc.), foreign library portals (Europeana, Library of Congress, Gallica, etc.);
- the majority answered “sometimes” with regard to Google Books.

Question 13: Use of digital tools



19 The review across sub-groups reveals differences above all between the SSH and STM groups:

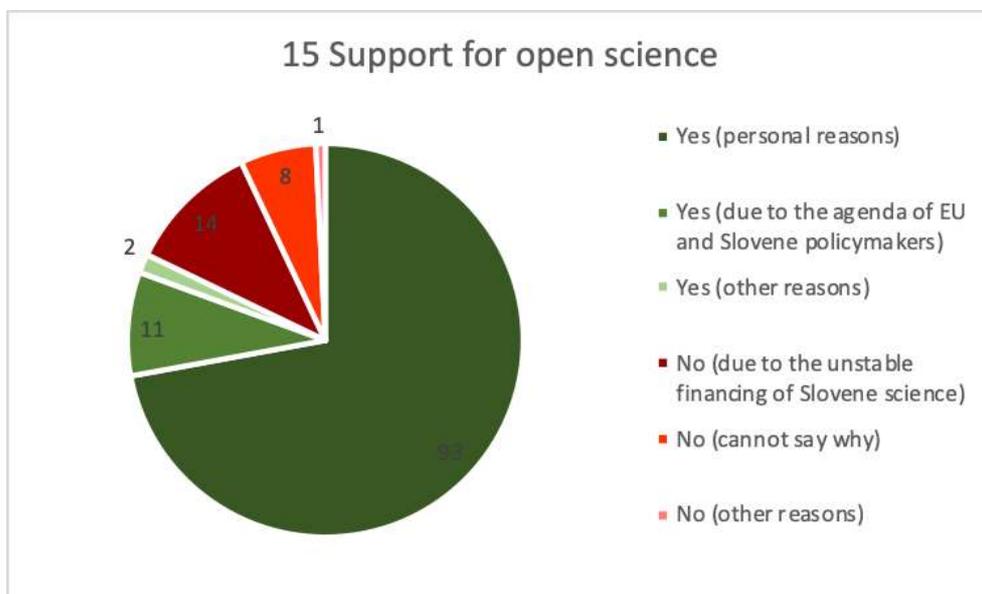
- 72.45% of the SSH group use library catalogues frequently (and 20.41% use such sometimes); as regards the STM group, 48.39% use them frequently (and 45.16% sometimes);
- the dLib system is used much more by the STM than the SSH group: 57.14% versus 12.90%;
- foreign library portals, which primarily offer older digitised sources, are used sometimes especially by the SSH group (46.94%) and much less so by the STM group (12.90%);

- the same holds true with regard to Google Books, which is used sometimes by 64.52% and frequently by 19.35% of the STM group; for comparison, the SSH group selected the options “sometimes” and “frequently” in an equal share (46.94%);
- academic social networks are frequently used by 74.19% of the STM group and 44.9% of the SSH group (which corresponds to the responses regarding sources of information; see Question 9).

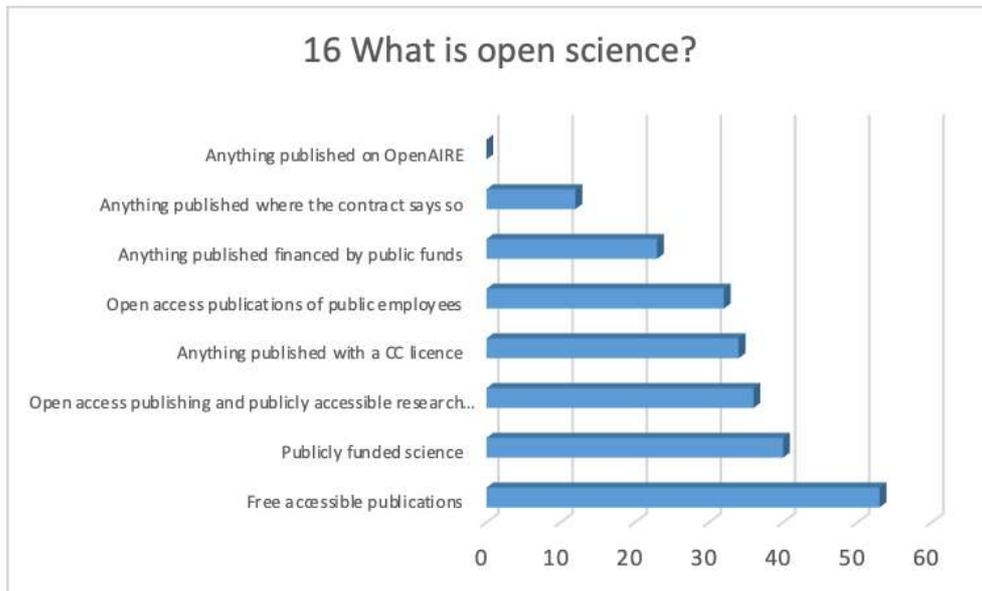
Open science

- 20 A great majority of the respondents (82.2%) support open science as a concept, which is most commonly reported to be due to personal reasons and not due to the directives of the EU, ARRS, or for some other reason (**Question 15**).

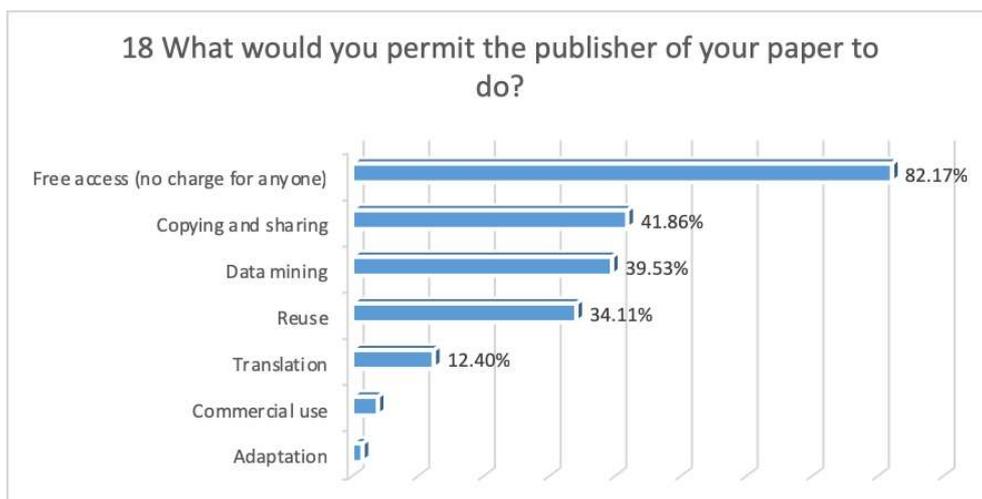
Question 15: Support for open science



- 21 The next question offered a few quite different options in answer to the question of what the respondents think is open science; more than one answer was possible. None of the suggestions as to the definition of open science was supported by the majority (i.e. more than 50%) of the 129 respondents (**Question 16**), and only a handful of suggestions were supported by the majority within individual groups. The majority were of the opinion that open science merely means free access to publications—such was the response of the majority of the “60 and above” age group (55.56%). A relatively large number (one third) of the responses reveal the opinion that open science should be in the domain of public services. The majority (57.14%) of the youngest age group, i.e. “30 and below,” think that all public servants should allow free access to their publications. The smallest share of respondents are of the opinion that duties regarding open science should be defined by contracts, and no one is of the opinion that the OpenAIRE cloud is the key to open science.

Question 16: What is open science?

- 22 The results show that a great majority of researchers support the open science concept (**Question 15**); however, most respondents would not agree to having the Creative Commons CC-BY licence regulations apply to their publications, as it is indirectly shown by the responses to Question 18. A great majority (more than 80%) would allow anyone free access to their papers, 30-40% would also allow the following as regards their papers (in descending order according to percentages): copying, data mining, and reuse. Furthermore, one in ten respondents do not mind unauthorised translation of their texts. Last but not least, nearly all respondents are in favour of *non-commercial* and *no-derivatives* use.

Question 18: What would you permit the publisher of your paper to do?

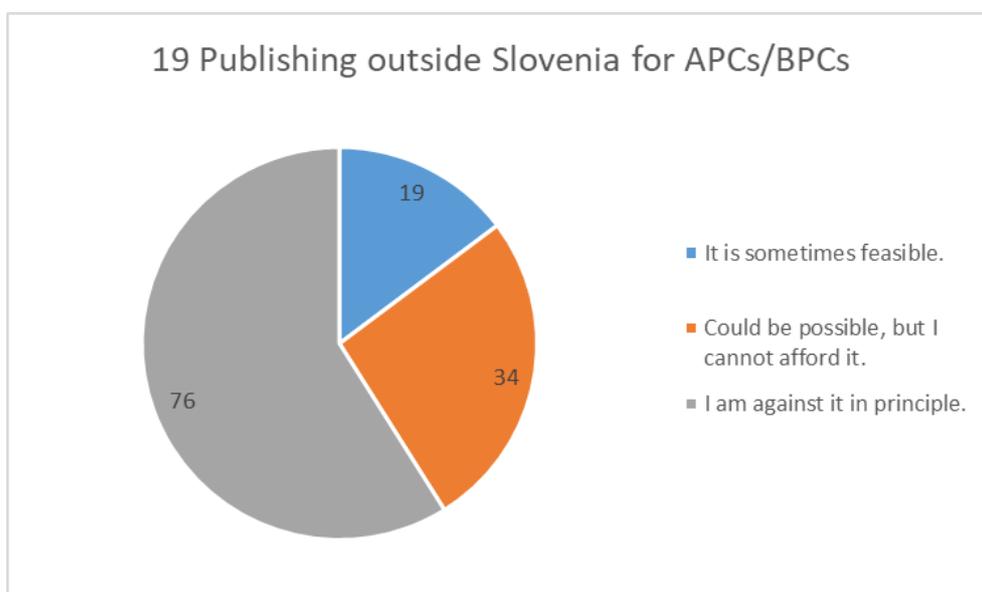
- 23 The results across field-related sub-groups differ only slightly from the above-mentioned, with the responses of the STM group following the same order in terms of frequency. The order of the SSH group deviates only as regards two categories, i.e. data mining would be allowed by a greater number of respondents than copying and reuse.

- 24 An overview of age-related sub-groups gives the impression that more conservative access, i.e. restricted access, is generally supported by older respondents:
- free access is most frequently supported by the “30 and below” age group (92.86%) and least frequently by the “31–39” age group (75.76%);
 - permission to copy respondents’ academic papers decreases with their age: from 57.14% as regards the youngest (“30 and below”) group to 22.22% as regards the oldest (“above 60”) group;
 - permission for the reuse of academic papers varies across age groups, ranging from 39.47% (“40–49” age group) to 22.22% (“60 and above”);
 - similar holds true for data mining, which ranges from 51.52% for the “31–39” age group to 23.08% for the “50–59” age group;
 - the number of positive responses to the other three questions was so minimal that differences according to age group can be neglected.

Publishing, peer-reviewing, and editing

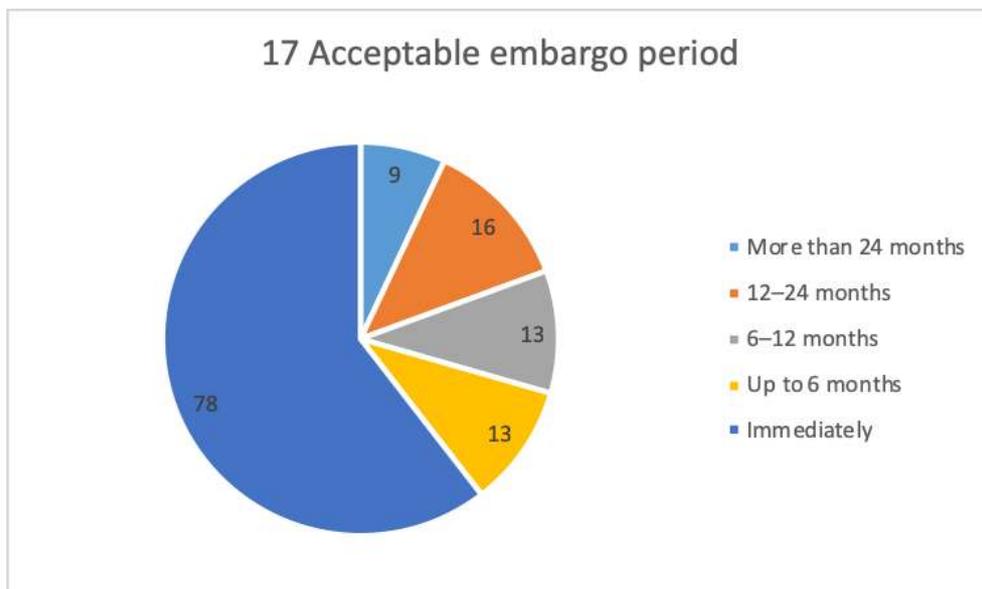
- 25 The (expected) response of the majority as regards the previous question, i.e. “free-of-charge publication,” raises the interesting question of in what circumstances researchers would publish their papers if they had to pay the publisher a fee (APC or BPC) (**Question 19**), as is a well-established practice abroad. In numerous cases, paying for publication opens the door to an esteemed journal/publisher and gains the author many points in the assessment system. At the time, much of the evaluation of the researchers in Slovenia is literally numerical: in the system they get points for their publications.
- 26 Foreign journals are important references, which otherwise do not come so easily. Some researchers think that publishing with with APCs/BPCs is connected with high quality articles/books that undergo a strict review process, but this is hard to prove. I was merely interested in the financial aspect and the related implicit assumption: if such payment were not an issue, would the author publish more frequently in such journals?⁴

Question 19: Publishing outside Slovenia for APCs/BPCs



- 27 The results of the SSH and STM groups are noticeably different, while the results across age groups show that payment is viewed as more acceptable by younger generations (which is probably also due to the Slovene system of assigning points necessary for promotion). However, the general picture across different groups is similar:
- as a general rule, the majority of respondents avoid publication for which a fee must be paid; publication in return for the payment of APC/BPC fees is avoided more frequently by the SSH group (67.35%) than by the STM group (32.26%); opposition to the payment of fees is greatest amongst the oldest two age groups: 73.08% of the “50–59” age group and 83.33% of the “60 and above” age group are against such publication;
 - a little less than one third of respondents feel that funding for payable publication is not available; this response is common within the “40–49” age group (36.84%) and the “30 and below” age group (35.71%);
 - approximately 15% of respondents do not deem occasional publication for a fee to be a problem; this response is most common among the youngest two age groups, i.e. “30 and below” (21.43%), and “31–39” (18.18%).
- 28 The majority of the respondents are of the opinion that open access to academic papers should apply without an embargo period (**Question 17**). Such an embargo period is noticeably less bothersome to the SSH group (56.12% of the respondents support immediate open access) than to the STM group (75.16% of the respondents support immediate open access).

Question 17: Acceptable embargo period

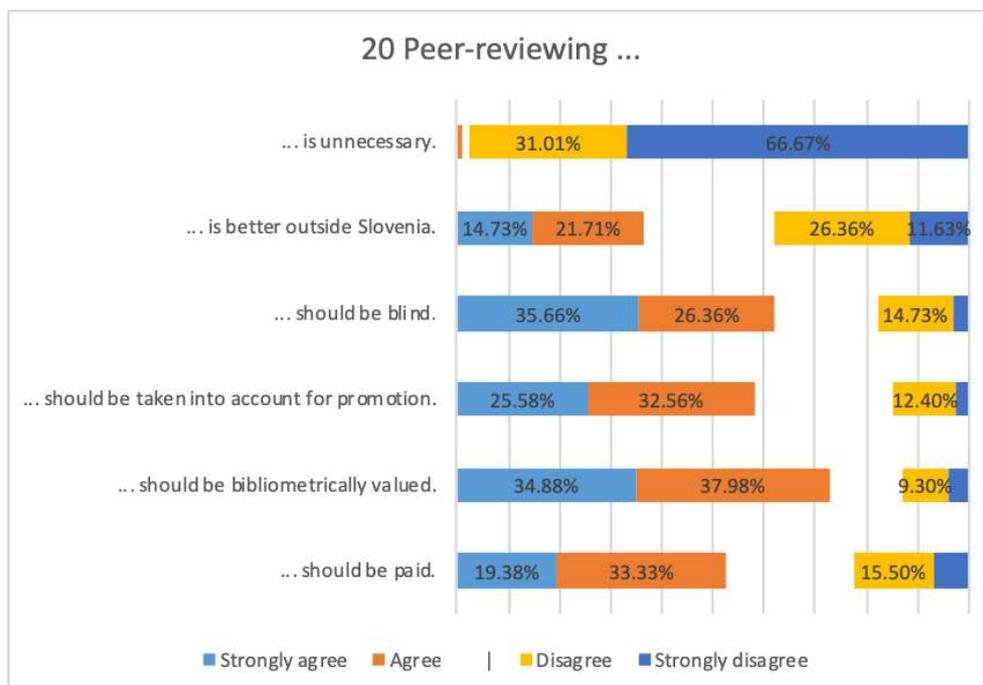


- 29 A great majority of the respondents are of the opinion that peer-reviewing (**Question 20**) is important; more than 97% of respondents disagree with the idea that peer-reviewing should be eliminated. The greatest number of respondents (72.86%) support the idea that such should be evaluated within the SICRIS system. Furthermore, the majority support the following: blind peer-reviewing (in any form) is the only correct form of such reviewing (62.02%); peer-reviewing should be taken into account in promotion (58.14%); and reviewers should be paid for such (52.71%). Last but not least, only slightly more than one third of the respondents are of the opinion that peer-reviewing abroad is stricter

than in Slovenia (36.44%). The survey did not check how many of them believe that peer-reviewing is stricter in Slovenia.

- 30 Responses across the SSH and STM groups are similar; however, a slight deviation is noticeable across the different age groups. That reviewers should be paid is most frequently reported by the youngest age group, i.e. “30 and below,” with 71.43% of the respondents agreeing; however, this notion also received the support of more than half of the respondents of the largest two age groups, i.e. “40–49” (63.16%) and “50–59” (50%). All respondents (100%) from the most numerous group, i.e. “40–49 years old”, and the majority of the respondents from other age groups are of the opinion that peer-reviewing should be evaluated within the SICRIS (the Slovene evaluation system). Despite all this, the idea that peer-reviewing should be taken into consideration as regards promotion received support by fewer respondents, especially those from older age groups (who also hold higher academic research positions; see Questions 1 and 2). This suggestion received a majority only within the age groups “30 and below” (50%), “31–39 years old” (57.57%), and “40–49 years old” (84.21%). None of the age groups agrees with the statement that peer-reviewing is of higher quality abroad than it is in Slovenia and only one respondent (belonging to the oldest age group) selected the option that peer-reviewing is an unnecessary formality.

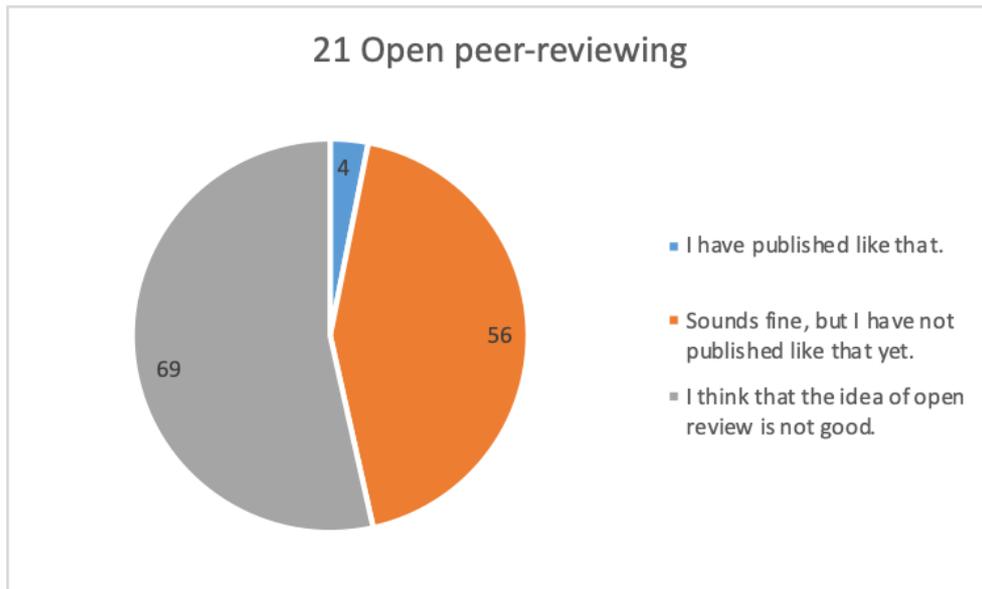
Question 20: Peer-reviewing ...



- 31 One of the statements in Question 20 was about blind reviews, which was supported by the majority of the respondents (62.02%), of whom a slightly higher share pertains to the STM group (67.74%) than to the SSH group (60.21%). These results are similar to those obtained with regard to **Question 21**, where researchers were asked what they think about the concept of open peer-reviewing. As explained in the questionnaire, making the peer-reviewing procedure known to the public is intended to ensure its transparency and prevent reviews from being mere formal recommendations without comments as regards content. More than half of the respondents oppose such a system; what is more, only a

handful of them have themselves published under such conditions. While open peer-reviewing is supported by only 40.82% of the SSH group, it enjoys somewhat stronger support among the STM group (51.61%). Furthermore, only the youngest two age groups view open peer-reviewing as positive, with such concept being viewed as sensible by 50% of the “30 and below” group and by 60.61% of the “31–39” group.

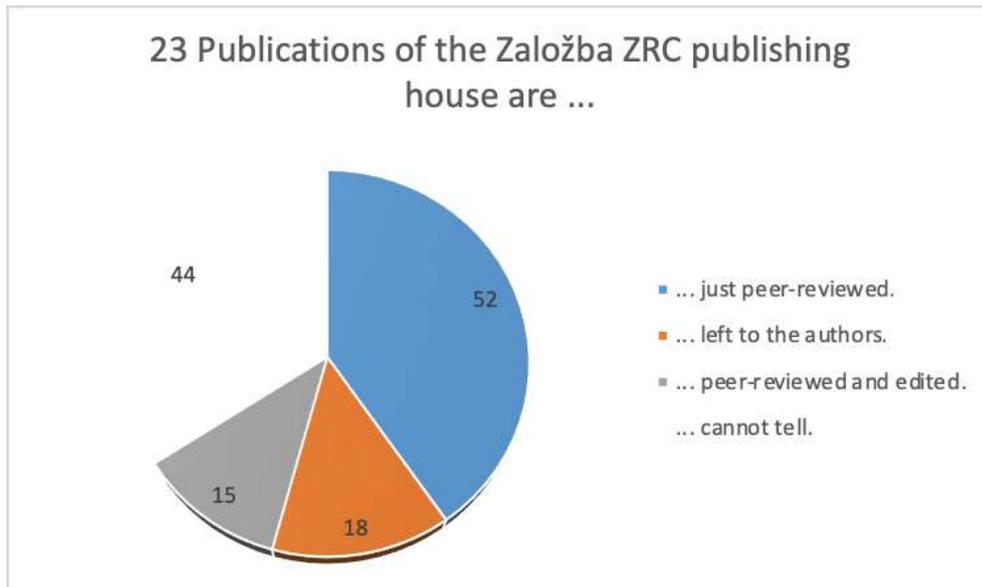
Question 21: Open peer-reviewing



- 32 Respondents are of the opinion (**Question 22**) that the average length of the reviewing procedure for the publication of an article in a scientific journal should not exceed 2.6 months (responses ranged from a maximum of 6 months to a minimum of 1 month). The highest average (2.93 months) was calculated with regard to the youngest age group, i.e. “30 and below,” and the lowest (2.19 months) for the “50–59” age group. The STM group would prefer a faster process (2.29 months) than the SSH group (2.7 months). With regard to reviewing monographs, the average length should be 4.36 months (with a maximum of 12 months and a minimum of 1 month). The two extreme lengths were, again, calculated with regard to the above-mentioned age-groups: the “50–59” age group expect reviews of a monograph to be completed in the shortest amount of time (3.54 months), while the most patient group is the youngest group, i.e. “30 and below,” (5.14 months). Furthermore, a comparison across scientific fields shows that the STM and SSH groups have fairly similar opinions, despite the fact that scientific monographs are significantly less common in the STM group: on average, monographs should be reviewed in 4.3 months (the SSH group) or 4.55 months (the STM group).
- 33 As regards whether they have experience dealing with their ‘home’ publisher, i.e. Založba ZRC, (**Question 23**), 85 respondents (i.e. 65.89%) responded affirmatively, while those from the youngest two age groups, understandably, had the least experience therewith. With regard to the “30 and below” age group, 85.71% of the respondents stated that they did not have enough experience for a more detailed response; the same holds true for 45.45% of the “31–39” group. The respondents in the oldest age group, i.e. “above 60,” have had the most experience with Založba ZRC (88.89%). All those who have published through Založba ZRC stated, for the most part, that journals and monographs are prepared by individual institutes in accordance with the guidelines of the publishing

council; such entails that every publication has an editor responsible for the revision thereof in terms of content and a proper peer-reviewing process. Despite all that, one in five respondents think that the publications of ZRC SAZU are merely peer-reviewed and do not undergo an editing process. Furthermore, a slightly lower share of publications do not undergo editing or review in terms of content, but, allegedly, only receive reviewers' recommendations, while they are otherwise left completely up to the author.

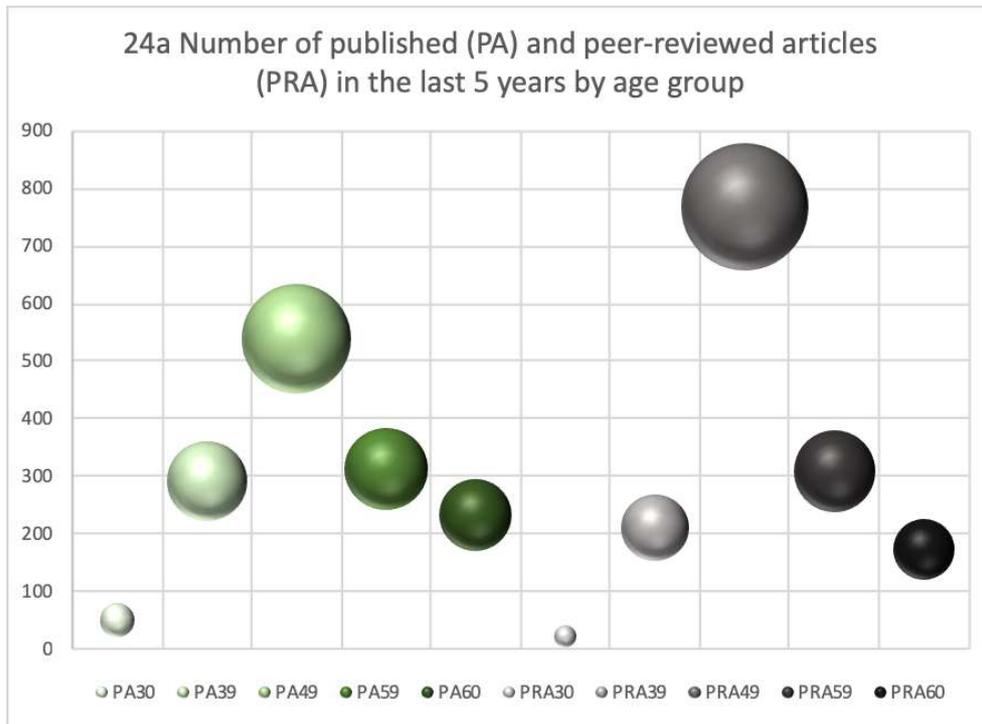
Question 23: Publications of the Založba ZRC publishing house are...



34 The objective of the final question (**Question 24**) was to find out the activity of respondents as regards publishing, editing and peer-reviewing within the past five years (2014–2018). The following results were obtained:

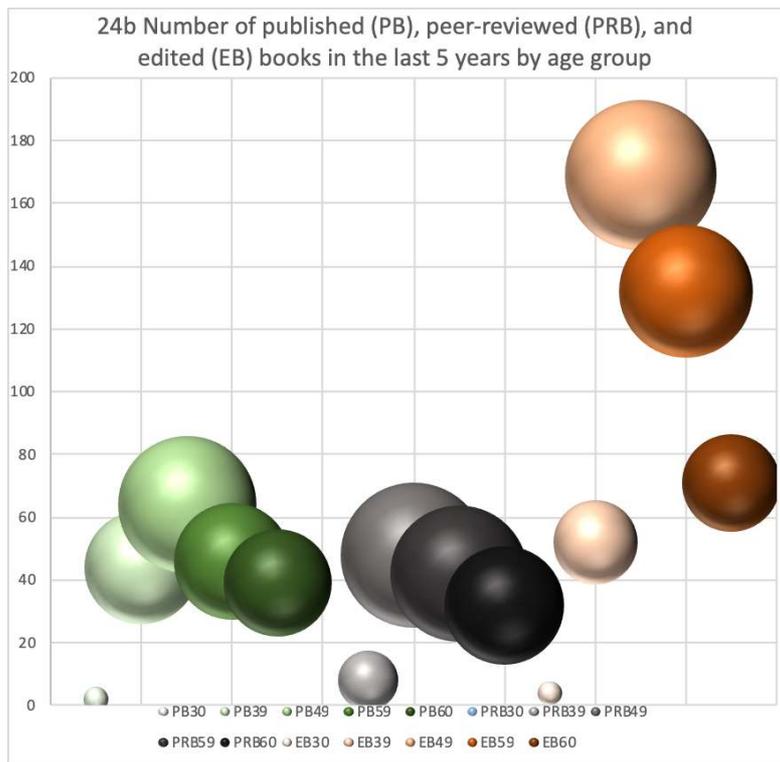
- papers published: a total of 1,429, with the average per respondent being 11.08 (the maximum was 70) = an average of 2.2 papers per respondent annually; respondents in the “40–49” age group published the highest average number of papers (14.18);
- monographs published: a total of 195, with the average per respondent being 1.51 (the maximum was 10) = approximately one monograph per respondent every three years; respondents in the oldest age group, i.e. “above 60,” published the highest average number of monographs (2.17);
- peer-reviews of academic papers published in journals and proceedings: a total of 1,483, with the average per respondent being 11.5 (the maximum was 150) = an average of 2.3 papers per respondent annually; respondents in the “40–49” age group reviewed the highest average number of papers (20.21);
- monograph peer-reviews: a total of 130, with the average per respondent being 1.01 (the maximum was 10) = approximately one per respondent every five years; respondents in the oldest age group, i.e. “above 60,” reviewed the highest average number of monographs (1.78);
- editing a journal or monograph: the average per respondent was 3.32 (the maximum was 30) = approximately 1.1 per respondent every three years; respondents in the “50–59” age group edited the highest average number of journals or monographs (5.08).

Question 24a: Number of published (PA) and peer-reviewed articles (PRA) in the last 5 years by age group



- 35 The number of academic papers peer-reviewed roughly corresponds to the number of published papers; deviations from the average are somewhat higher with regard to peer-reviews, which leads to the conclusion that more researchers are involved in writing papers than in peer-reviewing such. This further confirms the conclusions obtained from the responses to Question 19 demonstrating respondents' support for the notion that reviewers should be rewarded in some manner. Similar holds true as regards monographs: the respondents publish more monographs than they review. All of the above leads to the conclusion that peer-reviewers are more difficult to find than authors.

Question 24b: Number of published (PB), peer-reviewed (PRB), and edited (EB) books in the last 5 years by age group



- 36 The least active as regards publishing were the two younger age groups. The most productive was the “40–49” age group, which also produced the most peer-reviews. Older researchers are more active as editors, and also as peer-reviewers and authors of monographs. The main difference between the SSH and STM groups lies in publishing papers (9.91 for SSH compared to 14.77 for STM) and peer-reviewing (8.64 for SSH compared to 20.52 for STM). The respondents from the SSH group peer-reviewed almost twice as many monographs (1.14 on average) than the respondents from the STM group (0.58); however, the difference is smaller as regards the number of monographs published (1.59 for SSH compared to 1.26 for STM)—such must result from the common practice of the joint authorship of works in STM fields. As regards editing, the results for both groups are similar: 3.36 publications on average within the SSH group, compared to 3.19 within the STM group.

Conclusion

- 37 The survey resulted in certain findings which—although contradictory at a first glance—can be understood as providing a basic guideline for future work.
- 38 With regard to accessing academic literature, a great majority of the respondents are of the opinion that resourcefulness is needed (Question 8); however, more than half thereof obtain most academic literature in a fairly simple manner: from ZRC SAZU’s subscription packages and free internet sources (Question 9). The collections that ZRC SAZU has access to via the Slovene consortium cover only half of the research needs and respondents are not well acquainted with them (Question 11); such is informative when considering that

ARRS allocates more annual funds for purchasing access to foreign collections than for supporting Slovene academic publishing—and this despite the fact that Slovene is very frequently the language of secondary literature (Question 4).

- 39 The second important divide is the unanimous support for open science (Question 15), on one hand, and some fundamental objections to the way it is being implemented in practice, on the other. The respondents support open science mostly for personal reasons and convictions, the majority think that a sufficient condition enabling open science is free access to publications (Question 16) without an embargo period (Question 17). However, almost no respondents would consent to being published by allowing adaptation and commercial exploitation, which implies that they would have a problem publishing under a licence such as CC-BY (Question 18). They also oppose an open peer-reviewing process (Question 21) regarding their publications. Reservations such as these are reported also from other countries where debates regarding open science have been ongoing for a while now.
- 40 The results of the survey include a number of other useful findings, e.g. the following:
- although the internet is the most important source of academic literature, classic printed texts are important too as researchers still prefer to read literature on paper (Question 7);
 - ZRC SAZU members obtain the majority of their academic literature from ZRC SAZU's subscription packages, i.e. via its computers or from its libraries (Question 9);
 - the majority deem their knowledge regarding what various websites have to offer and digital tools insufficient, and would like to learn more about such (Question 13);
 - almost all respondents are in favour of the established peer-reviewing procedure and are of the opinion that such should be assessed more highly (Question 20);
 - almost one fifth of the respondents are of the opinion that the publications of Založba ZRC only undergo a superficial editing/peer-reviewing process (Question 23);
 - the survey established the average response time expected by authors from reviewers (Question 22), the scope of researchers' activity as regards publishing (Question 24), and the time they spend studying academic literature (Question 5).

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NOTES

1. I addressed in more detail certain issues regarding the understanding of transitioning to open science in Slovenia in the blog of ZRC SAZU (see Pogačnik 2019a and 2019b).

2. In the preparation of the survey, Maja Andrič (PhD, research fellow at the Institute of Archeology), Majda Černič Istenič (PhD, senior research fellow at the Sociomedical Institute), Martin Pogačar (PhD, research fellow at the Institute for Culture and Memory Studies), and Ciril Oberstar (MA, Založba ZRC), also took part. The survey was carried out on the Lime Survey platform, and was technically edited by Uroš Parazajda. The original questionnaire (in Slovene) was slightly different from the formulations mentioned in this interpretation and can be downloaded here: https://www.zrc-sazu.si/sites/default/files/anketa_vprasanik.zip. The full results (in Slovene) can be downloaded here: https://www.zrc-sazu.si/sites/default/files/anketa_rezultati.zip.

3. After the survey was done, two similar surveys were brought to my attention. The first was created under the auspices of the European Commission under the title *Providing researchers with the skills and competencies they need to practise Open Science* (see European Commission 2017). The second was created in Slovenia back in 2008, in the framework of the pilot study "Managing copyright and related rights on the Internet - the aspect of public institutions" (see Breznik Močnik et al. 2010, pp. 95-115). Both used completely different sets of questions; they also had different aims. The first (involving 1,277 European researchers) wanted to determine what the effect of open science is, while the second examined the opinions of 297 Slovenian researchers on freely accessible online content.

4. To date, there has been no research on the APCs/BPCs of foreign publishers in Slovenia. In autumn 2018 (at the time of the survey) ARRS published a tender to cover the costs of APCs/BPCs, but only if the article was published (during 2018) with open access, even if some publishers charge considerably more for open access publication. Only half of the funds (approximately EUR 150,000 of the planned EUR 300,000) were used (ARRS 2018b). There is some scepticism as to how this actually contributes to Slovene science. Why should the state encourage publication for which open access is charged (more)?

ABSTRACT

What does “open science” mean to researchers? A survey of researchers at the Research Centre of the Slovenian Academy of Sciences and Arts (ZRC SAZU) suggests some interesting conclusions, particularly as far as the humanities are concerned. According to the responses, most of these researchers are in favour of open science as a matter of personal conviction. However, when it comes to publishing their own work, hardly any would consent to being published under some basic conditions of open science (adaptation, commercial use). Furthermore, they do appreciate subscription-based e-libraries, although they admit to using other methods, e.g. “resourcefulness”, to gain access to research papers. They would rather not pay to be published or to acquire an e-article of a fellow researcher. They read predominantly in English, with the second language of their research literature being Slovenian (before any other language). Even the most productive age group (40–50 years of age) write more articles than they perform peer-reviewing. They do not support open reviews, yet they consider peer-reviews to be very important; in their opinion peer-reviewing should be included in their evaluation. The survey and its results are just a minor example from a European country, but they have a very clear and universal message: open science is something yet to be defined.

INDEX

Keywords: survey, open science, Slovenia

AUTHORS

ALEŠ POGAČNIK

ZRC SAZU, Založba ZRC

ales.pogacnik@zrc-sazu.si