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Russian-French Scientific Collaboration: Approaches and Mutual Attitudes[1]

Abstract: This article presents the results of a survey of Russian and French scientists, which has been conducted via face-to-face interviews, to identify motivations, origins, and a pace of development for scientific collaborations between the two countries. Respondents had experience in different types of interactions, including participation in joint research projects, fellowships, and part-time work in partner's lab. The major obstacle for these collaborations is the lack of funding, some logistical problems, with other issues related to the specifics of organization and regulation of scientific research in Russia. Sanctions and the state of foreign affairs also affect collaborations, even if indirectly. However, despite the existing obstacles, both parties are willing to continue joint work. Most of the findings of this study, which appeared to be more specific to science disciplines than to Russian-French relations, are likely to be applicable to the understanding of collaborations between the Russian and EU scientists in general.

Keywords: international scientific cooperation, Russia, France, mutual perceptions, obstacles, prospects.

Most studies of international scientific cooperation can be classified into the three categories, which focus on bibliometrics, legal and political issues, and existing collaborative programs, respectively. Bibliometric analyses are typically used to measure the intensity and productivity of collaborations. These studies showed, for example, that researchers from the developed Western countries prefer to publish jointly with their colleagues from the same country group (e. g., Chinchilla-Rodríguez, Vargas-Quesada, Hassan-Montero, González-Molina, & Moya-Anegóna, 2009; Gazni, Sugimoto, & Didegah, 2012; Marshakova-Shaikevich, 1995; Mirskaya, 1999; Shaposhnik, 1999; Wagner & Leydesdorff, 2005; Wilson & Markusova, 2004). Wilson and Markusova (2004) used bibliometrics to demonstrate that some developing countries, such as Russia, are trying to "catch up" by widening their cooperation with Western European and North American countries. In yet another study of this type, Shaposhnik (1999) used data from the Science Citation Index to follow changes in the Soviet/Russian international scientific collaborations.

Studies dealing with legal and political aspects of international scientific cooperation can be exemplified using a recent work by Kiselev (2014), who discusses these issues for Russia. The author suggests that the improvement of international ties can help Russia to become more successful in attracting a young generation into science, increase publication outputs, improve its currently weak grant system, *etc*. In another study of this kind, Dezhina

[1] Funding: The travel funds for this project were provided by the French Embassy in Moscow.

(2010) shows how science and innovation policy in Russia affects the pace of development of international scientific collaborations.

Finally, the third group of studies comprises reports on results of ongoing collaborative efforts, predominantly within the EU Framework programs. These studies often concentrate on specific subjects (biotechnology, nanotechnology, etc.). Thus, Sharova et al (2016) analyze major instruments of government support for biotechnology and bioeconomy in Russia and discusses the possibility of applying these mechanisms to international cooperation. Other studies from this category also evaluate various EU programs (Horizon 2020, ERANET) to identify the extent to which they influence Russian regional development [*Sharova, Dzedzyulya, Abramcheva, & Lavrova,* 2016].

A number of publications devoted specifically to the Russian-French cooperation in science and technology is relatively limited. Often these studies consider Russian-French interactions in a broader context of international cooperation. Some publications, which focus on bibliometric indicators [*Aldieri, Kotsemir, & Vinci*, 2017; *Markova,* Shmatko, & Katchanov, 2016], provide valuable information on the relative standings of the two countries. Russian articles that analyze the reform of the Russian Academy of Sciences (RAS) provide comparison of the Russian and French systems of science. The defenders of RAS have been using the French CNRS (le Centre national de la recherche scientifique) as an example of a similarly structured system that is successful. The CNRS is usually regarded as an effective collaborative scheme between the Academy institutes and universities and as a proof that having an independent system of fundamental research is important. Examples of such studies include Polterovich (2014) and Varshavskii' (2011). Another direction of research represents historical studies of Russian-French collaborations or scientific interactions in certain disciplines, for example, mathematics [*Graham, & Kantor*, 2006; *Graham & Kantor,* 2009], space biology and medicine [*Grigor'e, & Kotovskaya,* 2016] or sociology [*Gofman*, 2014]. Sometimes these relationships are analyzed through the prism of Russian emigration to France [*Gofman*, 2014] or focused on certain professional Diaspora groups in France — for example, IT specialists [*Smirnova*, n. d.].

A separate group of studies includes formal reports, which document activities of Russian and French scientists within inter-governmental collaborative schemes. For example, a special issue of "Vestnik RFBR" (Russian Foundation for Basic Research) [*Vestnik RFFI,* 2016] was devoted to the 20th anniversary of the RFBR-CNRS supported Russian-French scientific projects. The issue contains articles by Russian scientists who participated in these collaborations, which describe their disciplinary areas, research findings, and project outcomes; additionally, it includes samples of opinions of Russian participants on their cooperation with French partners. These views cover a history of a given collaboration, its sustainability, prospects, and approaches to a search for partners.

All of the above works, while providing useful information on a "big picture", do not reveal the nature of cooperation, mutual perceptions of collaborating researchers, and factors that influence their pace of development.

One study, which is unrelated to science but is relevant to the context of this paper, has been implemented by Muratbekova-Touron (2011), who conducted a survey of mutual perceptions of Russian managers working in France and of French managers in Russia. Some observations of asymmetry of these perceptions bear similarities to the findings outlined in the present article. Muratbekova-Touron shows that French culture has historically attracted Russian people. Russian nobility adopted French as their conversation and correspondence language, contributed to the spread of French culture in Russia, which till present

remains highly popular. This differed drastically from the views held by French managers, some of whom even expressed "Russo phobia". Then, the issue of language turned out to be important, especially for the Russians working in France.

Our study addresses the question of mutual perceptions of Russian and French scientific collaborators. The results revealed that most factors that affect the development and pace of these collaborations are discipline- rather country-specific and therefore findings of this work can be applied to analyses of collaborations between Russia and other EU countries.

Study Design

This study has a goal of understanding how international scientific cooperation works and evolves at the level of individual researchers, based on their personal stories, opinions, and perceptions. The respondents have been asked questions on such issues as history and reasons for partnering with Russian / French colleagues, pace of development of these collaborations, benefits and obstacles of this joint work, assessment of graduate students involved, and effects of the new political situation and economic sanctions. The idea was to cover a wide range of aspects rather than to pursue each of these in depth. The study is based on unfocused interviews when conversations can develop in various directions. This approach is not suited for simple generalization of results in statistical terms; instead, it provides a wide variety of views and mutual perceptions.

A total of 39 interviews (15 Russian and 24 French respondents) have been conducted, from which 34 were face-to-face, and the rest — by phone or Skype. During the analysis, it became clear that a sub-group of the French respondents which consisted of Russian-speaking researchers, who reside permanently in France, should be assessed separately. The members of this sub-group were middle-aged or older and, therefore, have worked in both Russian (or Soviet) and French science systems. As a result, their attitudes differed from those of the native French researchers. Somewhat paradoxically, the phenomenon of only partial assimilation of Russian researchers can be attributed to a certain similarity between the science systems in the two countries. Russian scientists, who moved to France, were under an illusion that the French system should work similarly to what they got accustomed to in Russia (Soviet Union). "France sometimes gives an illusion of something familiar and a hope to find something that was lost", — noted one of the French respondents.

The respondents were selected on a snowball basis; however, the names of the initial group have been suggested by the French Embassy in Moscow and included those researchers that have been actively involved in collaborations under the framework of the French or Russian-French government programs. These first interviewees have been asked to provide names of other Russian or French colleagues who either participated in collaborative projects or had work experience in France / Russia.

Further selection of respondents was based on a set of criteria aimed to diversify science fields, types of research, and their duration as following:

1) *areas of traditional strength of Russian science (physics, math), advanced areas (biomed), and region-sensitive areas (paleontology, archeology, history) have been covered;*
2) *the respondents have been chosen from both fundamental and applied fields; some respondents were also involved in commercial applications of research results;*

3) *different types of collaborations have been covered (joint research projects via EU / French instruments; various research / training / teaching schemes);*
4) *the respondents included the researchers with on-going collaborations and those who were involved in this cooperation in the past.*

A geographic diversity of the Russian and French respondents is different: the Russian respondents are mostly from Moscow while their French colleagues have better regional representation. The respondents specialize in different research fields — physics, mathematics, biology, biomedicine, Earth sciences, archeology, paleontology, philology, and history. They are predominantly middle-aged or older.

All the interviews took place between September 2016 and May 2017. The predominant number of respondents agreed to talk on the condition of anonymity. Respondents were not controlled by age or duration of collaboration.

The opinions of all the French respondents, including those from the Russian Diaspora, were analyzed together, as a "French view". However, for issues on which the views of the Diaspora members deviated considerably from those of the native French scientists, the answers have been treated separately and compared to each other.

Cultural Aspects and Role of Language

Russian respondents discussed extensively the role of the French language and similarities of the Russian and French science systems. Many of them pointed out that the French and Russian research systems are similar because CNRS was founded in 1939 as a "mirror" of Soviet Academy; the same is true for INSERM (Institut national de la santé et de la recherche médicale) as a parallel structure for the Soviet Academy of Medical Sciences. By contrast, French respondents did not pay much attention to these historical facts.

Indeed, many features of the two systems remain similar. Both CNRS and the institutes of RAS laboratories cooperate with universities, although, in Russia, these collaborations are informal and not regulated administratively. Likewise, both systems are largely government-regulated and, therefore, rigid, with researchers holding permanent positions. At the same time "*France gives its researchers a possibility to do what they want and this makes the difference not only with Russia but also with USA, where you have to apply for grants all the time*" (Russian biomedical scientist, № 1).

In discussions about the importance of language skills, most Russian respondents noted that knowing French is crucial for maintaining long-term contacts with French scientists even though English can be spoken in French labs. At the same time, no correlation was found between the knowledge of French and the status of a collaboration. Some of the respondents, who are fluent in French, don't cooperate with the French any more.

The proficiency in French has been cited as important not only for work reasons but also for better understanding the culture and for communicating outside of a lab. Most respondents stated that French culture and mentality are close to Russian, especially if compared with those of Germans, British or Americans (the respondents have experience in collaborations with these countries). In particular, Russian respondents mentioned as "similar" the following characteristics:

- French scientists, like Russians, can generate ideas but have difficulty with their commercial applications;

- They are better scientists than" administrators and businessmen";
- The French may find compromises in difficult legal situations, like Russians do. "They may negotiate alternative routes when it is important for decision-making" (Diaspora math, № 1);
- They value uniqueness over unification.

At the same time, in the research culture, the French adopted some elements of the American (broader — overall Western) behavior; e.g., they pay much more attention than Russians to self-promotion. Overall, the respondents admitted that France is a very comfortable country for doing science.

Reasons to Start and Continue Collaboration

The study shows that there is no common approach to start a collaboration. The relations of the Russian respondents with their French colleagues started due to:

- Fellowships (temporary positions) at French labs and universities;
- Meetings at conferences;
- An initiative from the French side (interest to Russian publications or inventions);
- Accidental meetings with French scientists working on similar problems during visits to France.

In some cases, personal acquaintances have resulted in joint projects under the CNRS-RFBR calls. In others — to "pendulum" migration when Russian scientists have worked for extended periods in French labs and exchanged graduate students. Several respondents had a one-time fellowship and then continued the relationships remotely.

French respondents appear to be more proactive in seeking partners for collaboration. They often stated that they were actively looking for Russian partners. This is especially true for scientific fields that are region-specific, like geography, anthropology, botany, and Earth sciences. It is also true for areas where Russians have good data and sample collections (e.g., viruses or soil).

Half of the 'native French' respondents stated that they were looking for contacts with Russian researchers for a variety of reasons. These could be pure scientific interests (looking for specialists, data, or access to infrastructure) or some less obvious motives. In one case, a respondent developed interest in Russian science because his daughter decided to study Russian and make trips to Russia. In another case, a French researcher wanted to help Russian science after the breakup of the Soviet Union:

'*After the breakup of the Soviet Union I understood that it will be very difficult for science and decided to help Russians... There are many distinguished and unique scientists in Russia and collaboration gives a possibility to establish contacts and develop friendly relationships*' (French biophysicist, № 1).

Accidental meetings with Russians at the conferences also were starting points for further collaborations. Two respondents started to cooperate because of Russian-speaking colleagues who work in their divisions:

"*After the breakup of the Soviet Union many Russians left to France and United States. I first started to work with Russians in France*" (French physicist, № 2).

"*I started to collaborate with Russia due to colleagues of Russian origin. Now we develop collaborations between French biologists and Russian physicists*" (French physicist, № 3).

All the respondents from Diaspora stated that they have never interrupted collaborations with Russian colleagues in a variety of ways (formal and informal, in research and teaching).

"*I always continued to collaborate with Russia, and especially intensive it was in the 90-s when there were special grants for countries of the Former Soviet Union, like INTAS, for example*" (Diaspora physicist, № 2).

"*I preserved all my linkages with Russia, and I tried the new form of teaching of Russian students from Russian universities. It is individual work with a small group. I am teaching online, and then each student writes essay and then passes an exam, using video conference*" (Diaspora astrophysicist, № 3).

The survey revealed that aside of scientific interests, the collaborations could be inspired by an interest in training students, in teaching them new methods of research through their work in partner laboratories. Therefore, both parties are quite rational in their attitude to collaboration. They look for ideas, complimentary expertise, and good students.

"*Russians are good specialists in regional geography, linguistics, and archeology. And I can use technical tools for working with their data and check hypothesis*" (French Big Data specialist, № 4).

"*Russian researchers have a good knowledge of nature and objects. French scientists know how to use science-intensive methods of analysis. In Russia, these methods are not used*" (Diaspora hydrogeologist, № 4).

Intentions to further collaboration were expressed by both Russian and French respondents. In Russia, only those who work under formal international research cooperation tools supported by the Russian and French respective agencies plan to continue joint activities. Others reported the end of cooperation for one major reason: loss of interest in their research topic from the French side. This means that Russian-French official schemes for collaboration play an important role in sustainable development of partnerships. Overall, as other surveys show, (Shmatko, & Volkova, 2017) Russian scientists of higher qualifications do not consider international cooperation as important factor for successful professional activity: only 5.8 % of scientists working in research institutes and 3.8 % employed in universities value international cooperation as an important factor for professional growth. These are amazingly low numbers that demonstrate a continuing autarchy of the Russian science.

Half of the French respondents stated clearly their wish to continue and expand collaborations; for the Diaspora, this was not even a question — they maintain sustainable contacts. Some of the French researchers would like to take part in Russian programs that welcome foreign participation. Others are seeking Russian universities that wish to include them in collaboration schemes. One respondent would like to widen areas of collaboration by focusing not only on scientific research but also on commercially valuable developments. Some Diaspora researchers have a rather "romantic" view of the reasons for long-lasting collaboration:

"*France is interested in cooperation with Russia because for them Moscow is the same as for us — Paris. Here is the saying, that 'those French is bad who does not have Russian grandmother'. Russia and France are fond of each other. The first wave of [Russian] immigration influenced French science and culture*" (Diaspora astrophysicist, № 3).

Mutual Perceptions Regarding Russian and French Graduate Students

Students play an important role in international cooperation for at least two reasons: (1) they learn fast and then apply new knowledge in their home countries (especially when experimental studies are concerned). (2) Students are the future of inter-country scientific relations; they ensure the continuity of collaborations. Russian and French students establish long-term linkages that may yield new joint projects in the future. Therefore, an important question is whether the students who participate in international collaborations are well trained and have good soft skills.

The opinions of respondents turned to be very different. Some Russian respondents think that French students are weaker than their Russian counterparts. Others stated that students from both countries are alike. The differences in training were mentioned: French get deeper education and Russians — broader. As far as personal qualities are concerned, Russian students were called as having "more initiative", and "independent-thinkers".

A view of the Diaspora respondents was similar to that of their Russian colleagues. They praised mostly Russian students, who are regarded as a benchmark.

"*There are good French students, from Ecloes, not worse than Russian ones. Ecoles — this is the level of best Russian universities in their better times*" (Diaspora physicists, № 5).

"*Russian graduate students from Moscow state university are much stronger than the French ones*" (Diaspora chemist, № 6).

"*I mostly have graduate students from Ecole. They have equal level to Russian students from the best universities — Mechanical-mathematical department of the Moscow State University, Higher School of Economics, and Independent University*" (Diaspora math, № 1).

French respondents tried to perceive it in a comparative, alienated way. Some of them consider that students are more or less alike, but Russian students have certain peculiarities, for example, they are shy, do not ask many questions, may work long hours and lack some skills that are a norm for French students:

"*Russian students know a lot but they are unable to write a well-structured article, while French are usually obsessed with good structure. Russian texts are more descriptive; problematics is unclearly stated. Sometimes it is opposite — very abstract writing without any empirical evidence*" (French historian, № 5).

Overall, the native French respondents talk about Russian students with warmth and sympathy, while the Diaspora researchers did not demonstrate similar attitude towards French students.

Common and Russia-Specific Problems

The survey has revealed that there are general and country-specific obstacles to cooperation between Russia and France. Common problems include lack of funding for collaboration, difficulties related to customs clearance (for transferring samples and other research materials), and visa issues. Country-specific problems are connected to how Russian science is organized and functioning. Lack of proficiency in the English language also turned to be a Russia-specific problem.

Overall insufficient funding has been mentioned most often. Other common issues, such as exchange of samples, customs clearance, and assignment of intellectual property rights, are disciplinary-specific.

Aside of admitting that fundung is scarce, some French respondents connected the lack of money to "big-time policy":

"*For the CNRS, Russia is not priority anymore, especially after the closing of the CNRS representative office on Russia*" (French philologist, № 6).

Lack of financial support turned to be not the most cited difficulty for the French respondents. The number one problem is **the state of the Russian science**, including funding, bureaucracy, age of scientists, knowledge of foreign language, and rather recent addition to this list — pressure to publish, wish of the Russian side to publish as many articles as possible. All these factors influence the pace of collaboration.

Some of the French respondents indicated that the level of Russian science has declined and as a result "*in the 90-s it was possible to start collaboration with many Russian organizations, and at the present time you should know for sure, with whom you are dealing*" (French physicist, № 7).

Insufficient transparency is also a problem in a broader sense:

"*Some are cautious in traveling to Russia because of instability and lack of transparency in political regime. Diaspora researchers are least afraid at this point*" (French biophysicist, № 1).

Older-age scientists who hold leading positions at Russian research organizations and universities are also considered to be a hamper:

"*In Russia, there are many aged science administrators, just look at the age of academicians*" (Diaspora physicist, № 2).

"*There is misunderstanding of the concept of "collaboration" in Russia, especially among aged researchers. It is not a charity, it is equal exchange. You collaborate because your partner is better than you or is equal to you or even worse than you but due to partial transfer of joint work to him you are saving time. In Russia sometimes think that collaboration means that country-partner will give Russia money or any other goods*" (French archeologist, № 8).

This citation highlights a sometimes passive position of Russian scientists. If one is considering cooperation as a form of charity, then "waiting" is more natural than being proactive.

Another problem hampering fruitful cooperation is the **lack of English language knowledge** in Russia. It is noticeable that no one from the native French speakers said that Russians must know French.

"*Many young Russian scientists do not want to study even English... After three years of joint work some Russian participants did not manage to learn English. This limits their ability to take part in international conferences and communicate with foreign partners*" (French historian, № 5).

"*It is difficult to find partners because sometimes contact persons in Russia cannot write in English. We had a case when we were unable to overcome language barrier*" (French anthropologist, № 9).

The language problem is seen differently from the Diaspora side: they mention that the requirement to learn French (applicable to graduate students and postdocs) hampers cooperation with young Russian scientists. To their view, this is a French problem, not the Russian one.

Visa issues are mostly affecting the French side, according to both the Russian and French respondents:

"*Visa regulation is good for the Russian side. French sometimes may get visa fast only due to personal linkages*" (Russian neurophysiologist, № 3).

"*It is difficult to organize long stay of French students and graduate students in Russia, because of visa issues and other logistics. But the main problem is to get long-term visa for French students*" (Russian biochemist, № 4).

"*Visa is a problem. French give long-term (up to 5 years) visas to Russians, and Russians — only one-time visas*" (French archeologist, № 8).

Visa issue is to some extent a local problem. In some Russian universities, paperwork for a visa is not a problem, and foreign partners get long-term visas without significant efforts.

Finally, a rather recent problem is **the pressure to publish**. Those French respondents that were collaborating with Russian partners for years, especially noticed this change:

"*Now all Russians want to be co-authors of publications. Instead of 2–3 coauthors we have 15–16, and most of them are from Russia.*" (French archeologist, № 8).

"*In Russia, they want to have many publications, and they are expecting that we will publish together. I publish 2–4 articles per year, and in Russia the requirement is 4–6 publications, and it is not possible.*" (French mechanical engineer, № 10).

"*For Russians number of articles is more important than their quality. It is a reporting indicator for grants. Scientific level of an article is of secondary importance.*" (French Big Data specialist, № 4).

It is noticeable that the Diaspora respondents did not mention this issue at all. Probably they understand the origin of this phenomenon better due to their ongoing engagements with Russian collaborators, and this is not a surprise for them.

Despite a variety of problems, when the respondents have been asked about measures that could enhance collaborations, they were talking mostly about the necessity to increase funding. At the same time, the respondents have different views about the preferable forms and purposes of financial support. Among the areas, the lack of support for the following have been mentioned:

- Joint research projects,
- Organization of international conferences,
- Support of graduate students participating in joint international projects,
- Fellowships.

Influence of Sanctions and State of Foreign Affairs

Sanctions is a comparatively new issue in international scientific collaboration however it cannot be considered a direct obstacle for cooperation. The survey confirmed that the sanctions are not seen as a hamper by the predominant number of respondents both in Russia and France.

No Russian respondents explicitly stated that the sanctions or the current state of foreign affairs are a serious problem. But from the wording, it was clear that the respondents see some influence and thus think that scientists through international collaborations may oppose worsening of the relations at the government level:

"*When relations in politics worsened, relations in science are improving because this is an attempt to compensate difficulties of the political climate. It was much more difficult in USSR but still, foreign scientists were inviting Soviet scientists to visit them*" (Russian biologist, № 5).

While talking about sanctions, all the Russian respondents were assessing the reaction of the French side or were discussing a broader political context. No one was looking at the

sanctions as a result of the Russian politics that has led to such an outcome. It looks like scientists are cautious and want to separate themselves from the domestic political context.

Most of the French respondents think that the sanctions and political tensions do not influence scientific collaboration. The Diaspora representatives were the most positive: all except two respondents said that the sanctions did not affect cooperation.

"*Sanctions did not have any effects. We continue to work with Russia. France is a tolerant State, it has freedom of speech*"(Diaspora physicists, № 5).

At the same time, the French respondents (including the Diaspora) were talking about a difficult political situation and worsening foreign affairs. The most common point of view was that politics influences collaborations indirectly, and negatively. However, at the level of universities, political factors may not have an effect.

"*Political and economic situation in Russia do not favor cooperation. But at the level of French universities the politics is neutral. There is no encouragement of cooperation and there are no obstacles*" (Diaspora radiochemist, № 7).

"*Political considerations influence science indirectly. In France the views expressed by the President Charles de Gaulle are still powerful — 'Russia as a counterbalance to the United States'. But: it is not easy to develop cooperation after Ukrainian events. At the level of universities it is possible to sign agreements but better not to advertise them in mass media*" (French physicist, № 7).

The latter statement resembles the situation that was in the 80-s, after the Soviet Union entered Afganistan. In recently published memoirs, Claude Lorius, a French specialist in climatology and polar research and a foreign member of the Russian Academy of Sciences, discusses the influence of foreign affairs on scientific collaborations with Soviet scientists, back in the 80-s (Lorius, 2016). He writes that a close cooperation with Russians at that time and mentioning them in scientific results could generate criticism and blaming.

One respondent thinks that the sanctions have some positive influence on development of cooperation:

"*There is a certain positive because of sanctions. The Ministry of Foreign Affairs (Ministre des Affaires étrangères) decided to increase financial support for Russians — for example, to cover travel expenditures of young Russians who come to study in France. But CNRS thinks differently. Russia is not priority for them. ANR also does not have bilateral agreement with Russia, and they do not want to discuss the subject of cooperation with Russia*" (French physicist, № 2).

One of the respondents expressed an interesting opinion about the role of scientific cooperation and its potential to become a "soft power". He thinks that science diplomacy has little influence on foreign affairs. In his view, the best way to develop linkages and mutual sympathy is not by doing scientific research, but through studying language:

"*It is better to develop linkages through study of language. And French can do it very well. For example, there is a French cultural center in Moscow (Institut* Français de *Russie). It promotes study of French language*" (Diaspora math, № 1).

Discussion and Conclusions

The results of this survey are dependent on the initial selection of respondents. Therefore, the findings demonstrate only some characteristics of collaboration. It does not mean that they will be reproduced in full on another sample. At the same time, the group of respondents in this survey included both current and past participants of collaborations / fellowships / temporary work in Russia or France, scientists of different age and fields of study, and thus represents a wide variety of views.

Overall, the parties are willing to collaborate and there are no unsolvable problems. Those researchers who do not participate in joint projects or other forms of interaction any more, still contributed from their previous experience of working with/in France or Russia, as they did in cooperation with other countries. What is more important, in many cases, even when scientific cooperation came to an end, friendly relationships have continued. Personal friendships may have a larger impact on strengthening the links between the two countries than formal research partnerships.

Many respondents pointed out that the French and Russian research systems are similar because CNRS was founded in 1939 as a "mirror" of the Soviet Academy; the same is true for INSERM as a parallel structure for the Academy of Medical Sciences. Both systems are very much government-regulated, and researchers in the scientific institutes hold permanent positions. This similarity simplifies mutual understanding but at the same time creates a situation when the Diaspora researchers, i. e. Russian-speaking scientists working permanently in France, are predominantly not-assimilated. They are "Russians in French system". Similar situations may exist in other countries as well, but when systems are very different, like, for example, in Russia and USA, immigrant researchers are forced to detach themselves from their previous views and habits. The "French of Russian origin" were the most judgmental when discussing the motives of collaboration, obstacles, and quality of student training. Such criticism is not a factor of age or a year of their exit from Russia. Similar views were expressed by both older (who had the Soviet experience in science) and younger respondents, (who emigrated in the 90-s and 2000-s).

At the same time, the Diaspora researchers can be considered as a driving force for cooperation. All of them have continuing collaborations and links with Russia in various forms. Those Diaspora researchers who have Russian passports are especially mobile and can be more flexible than their native French colleagues about short-term visits if negotiations or consultations are necessary. Moreover, some French scientists were involved in cooperation with Russian researchers exclusively due to the Russian-speaking researchers working in their labs (institutes, universities).

Overall, directly and indirectly, the respondents acknowledged strong bonds between the two nations, and a mutual cultural influence (including the impact of post-revolutionary Russian emigration on France). Cultural interconnections help to sustain research linkages. In this respect, France is a special country for Russia, though, on average, the country of origin does not play a key role in the selection of scientific partners. Nevertheless, given several choices, the Russian scientists preferred France (for example, for short-term fellowships, temporary research positions).

The knowledge of the other side's language or at least the knowledge of English is important for strengthening international cooperation. This is in line with the findings of the Muratbekova-Touron's (2011) survey of mutual perceptions among Russian and French managers. In our survey, the value of knowing French has been emphasized especially by the Russian respondents. They respect the French's "love" to their language. The survey shows that language continues to be an issue, and the parties predominantly use English for communication. A solution could be in offering intensive language courses to scientists who have won a grant or received a fellowship in France. Germany offers such courses, which proved

effective (for example, for Alexander von Humboldt fellows). So far, the knowledge of even the English language continues to be a problem for the Russian side, as admitted by both young and older researchers alike. French respondents consider this to be a problem. Yet, they are very tolerant to Russians who do not know French and are extremely pleased when meet Russian scientists in Russia who do speak the language. None of the native speakers cited the knowledge of French is a prerequisite for cooperation.

Both undergraduate and graduate students are a future of science and international cooperation. In Russia, alarming moods about a worsening quality of higher education are common. The survey has demonstrated that Russian students are assessed positively by both the Russian and French respondents. In addition to a broad knowledge of certain areas of research, Russian students were praised for several personal qualities, including the ability to work long hours, persistence, and independent thinking. French students that participate in international collaborations are also strong. They have been characterized as well-educated, curious, efficient, and able to structure their scientific work. Judging from the opinions on students, it is possible to conclude that there are preconditions for continuing the French-Russian cooperation.

How do collaborations start? The survey reveals variety of ways, among which encounters at international conferences play an important role. Unfortunately, Russia currently hosts fewer conferences than before, especially in humanities. In defining possible collaborative schemes, support of international events should be carefully considered.

Overall, according to the survey, the French respondents seem to be more proactive in seeking partners for collaboration. "I was looking for..." was more characteristic for the French respondent while typical Russian responses would be "they found me; they invited me". In the beginning of 90-s, during the most severe crisis in Russian science, many countries and international organizations started to provide assistance. The transformation from "assistance" to "collaboration" was long and mentally difficult. At present, the concept of an equal partnership is common in the Russian-French collaborative schemes (e. g., parity in volumes of funding) but the mental perception of foreign partners as providers of "aid" is still widespread and could have influenced the views of some Russian respondents.

Concurrently, the reasons for collaborations proved to be pragmatic for both sides. Aside from exchange of ideas, dividing responsibilities, labor costs, and training students, the parties were interested in specific geographic areas, collections, databases, access to unique equipment, learning methods and techniques of research. This finding is line with previous studies of outcomes from international programs conducted in Russia. For example, the evaluation of Russian-American cooperative grants program that was conducted in the end of 90-s — beginning of 2000-s, showed similar results (Dezhina, 2005).

The respondents listed a variety of problems that hamper cooperation but none of them are exclusive for Russian-French collaborations. Lack of funding has been cited most often; such issues as difficulties in obtaining visas, transfer of samples, exchange of experimental data and materials also were mentioned.

A growing obstacle is the organization of research work in Russia, requirements towards reporting, and heavy focus on bibliometric output. These are the consequences of the current Russian science policy which cannot be changed at the level of individual universities or research institutes. The most characteristic example of a new obstacle is the pressure to publish. Russian scientists need publications in journals indexed in Scopus and Web of Science. It is important for the assessment of both individual researchers and whole

research institutes, for reporting purposes of grant-awarding organizations, and as a way to get monetary bonuses. The backside of this requirement is that it leads to chasing quantity at the expense of quality. French partners feel this pressure because a Russian side would like to have more joint articles with a larger number of Russian co-authors. Publishing in co-authorship with foreign researchers gives access to better (higher impact) journals and thus improves the bibliometric indicators. This trend — to publish more with foreign co-authors — has already been identified by the Russian Ministry of Education in Science in their assessment of bibliometric performance of the leading Russian universities (Ivanter, 2017). In France, the situation is different and the "publish or perish" slogan is not as abused as it is in Russia.

Sanctions and the state of foreign affairs are also a factor that should be considered in discussions of the status of international collaboration. The views of the Russian and French respondents differ somewhat, although in general both sides claimed that the sanctions did not influence their particular partnership. The Russian scientists mixed the sanctions and the changes in foreign affairs between the two countries. At the same time, the Russian respondents have been raising an issue of science diplomacy, thus indirectly admitting that some problems exist. In their reflections on the sanctions and state of foreign affairs, the Russian respondents based their judgement on the position of the French side, without looking at the sanctions as a reaction to Russian politics. They did not frame the Russian international politics as good or bad. This may be an indicator of the reluctance to discuss the sanctions in a broader political context and of the wish to separate scientific work from the surrounding economic and political factors.

The French respondents described the political situation as a difficult but stated that it influences scientific cooperation only indirectly, if at all. They suppose that at the level of universities, political factors may not have an effect.

Overall the idea that science is a sphere that connects countries at all times was shared both by the Russian and French respondents. And thus, it is appropriate to conclude by repeating the words of a Russian respondent, referring to a French scientist: "*Exactly scientists should be "advocates of culture", as Jean-Pierre Sauvage once said. They travel a lot and see other cultures and traditions... Only scientists are independent*".

Reflections concerning language, sanctions, financial questions reveal that the Russian-French collaboration is asymmetric. This differs from the asymmetry found by Muratbekova-Touron (2011) (e. g., "Russo-phobia" of French managers). Russian respondents appear to be less independent in expressing their views than the French; they are more cautious and frequently adhere to the "universally agreed" positions while discussing sensitive issues. These observations may reflect indirectly the current spirit within the Russian scientific community and, therefore, are likely to be found in analyses of collaborations between Russia and other Western countries.

This research could be expanded by exploring the state of scientific collaborations between Russia and other countries, and then comparing the results to identify similarities and differences. One interesting case could involve a study of be the Russian-British collaboration at the time of Brexit. Both science systems are in transition, therefore the pace, reasons, and outcomes of a joint scientific cooperation are not obvious. Many aspects of research cooperation related to mutual perceptions rather than to external regulations have not been studied yet.

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