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Physics and Lyrics: Disciplinary Divide in Post-Soviet Academia

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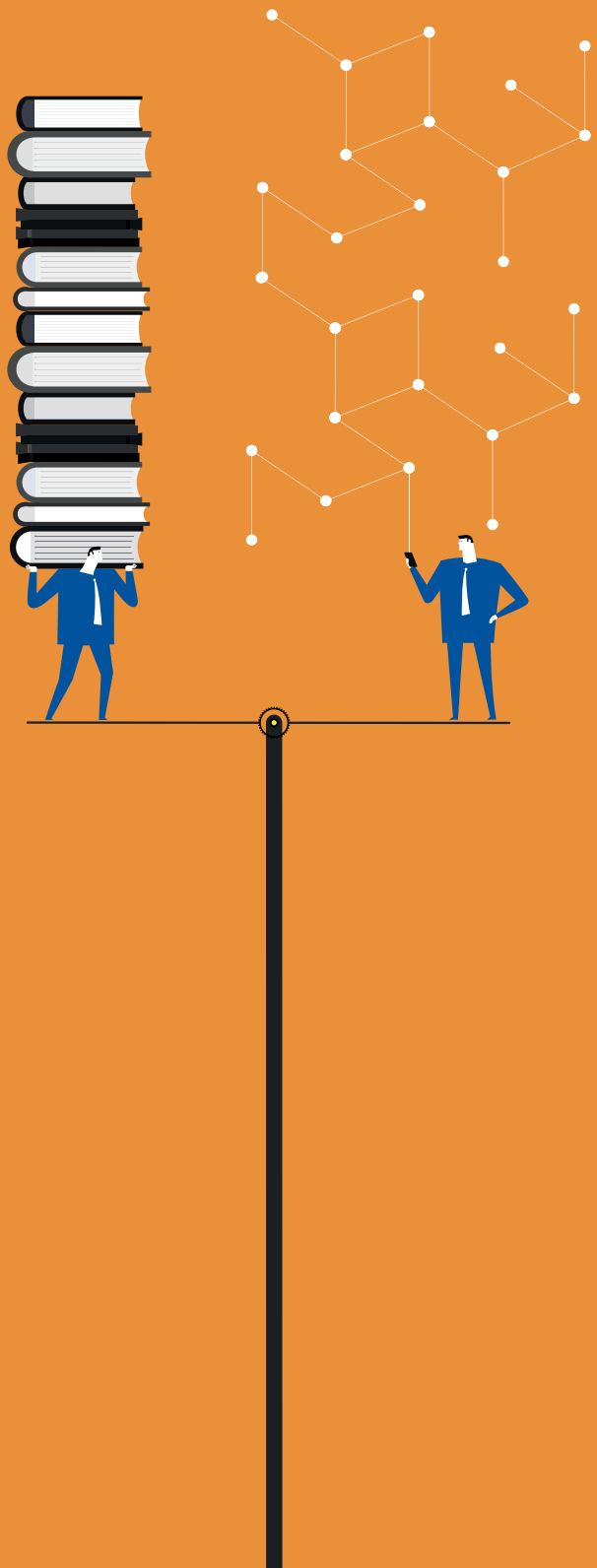

Dear colleagues,

We are happy to present the new issue of Higher Education in Russia and Beyond, a bulletin that is aimed at bringing current Russian, Central Asian and Eastern European educational trends to the attention of the international higher education research community.

This issue is dedicated to disciplinary discrepancies in different academic cultures. It contains a range of essays that outline these discrepancies in higher education in the post-Soviet period at macro-, meso-, and micro-level. The authors explore the issues of student choices and learning experience, faculty's publication activity, trends regarding new educational programs, and academic integrity. The authors analyze disciplinary dynamics and give a critical overview of the post-Soviet sectoral approach to higher education; they follow the development of humanities, social sciences and natural sciences in the Eastern Bloc during the period of separation from the global academic community to show how it is relevant to the discrepancies we see today.

Famous Soviet poet Boris Slutsky has perhaps best described the society's attitudes towards different disciplines in his 1960s poem 'Scientists and Poets':

Somehow scientists are in favor,
Somehow poets are in disgrace.
It has not been done on purpose
Everything has its own place

Did the truth come out in verses?
Did we stir somebody's soul?
Our rhymes are weak and hollow
They can't fly, they barely crawl.

Our stallion Pegasus
Has no wings, no briskly pace.
That's why scientists are in favor,
That's why poets are in disgrace.

It is obvious and clear.
Arguing won't bring a change.
And it even doesn't pain me;
It is interesting and strange

Watching how our soapy poems
Rise and settle in frustration,
And the greatness little by little
goes to numbers and calculation.

'Higher Education in Russia and Beyond'
editorial team

HSE

National Research University Higher School of Economics is the largest center of socio-economic studies and one of the top-ranked higher education institutions in Eastern Europe. The University efficiently carries out fundamental and applied research projects in such fields as management, sociology, political science, philosophy, international relations, mathematics, Oriental studies, and journalism, which all come together on grounds of basic principles of modern economics.

HSE professors and researchers contribute to the elaboration of social and economic reforms in Russia as experts. The University transmits up-to-date economic knowledge to the government, business community and civil society through system analysis and complex interdisciplinary research.

Higher School of Economics incorporates 47 research centers and 25 international laboratories, which are involved in fundamental and applied research. Higher education studies are one of the University's key priorities. This research field consolidates intellectual efforts of several research groups, whose work fully complies highest world standards. Experts in economics, sociology, psychology and management from Russia and other countries work together on comparative projects. The main research spheres include: analysis of global and Russian higher education system development, transformation of the academic profession, effective contract in higher education, developing educational standards and HEI evaluation models, etc.

CInSt

The Center for Institutional Studies is one of HSE's research centers. CInSt focuses on fundamental and applied interdisciplinary researches in the field of institutional analysis, economics and sociology of science and higher education. Researchers are working in the center strictly adhere to the world's top academic standards.

The Center for Institutional Studies is integrated into international higher education research networks. The center cooperates with foreign experts through joint comparative projects that cover the problems of higher education development and education policy. As part of our long-term cooperation with the Boston College Center of International Higher Education, CInSt has taken up the publication of the Russian version of the "International Higher Education" newsletter.

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Disciplinary Differences in Publication Output between Ex-COMECON Countries

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We continue a series of essays on scientometrics of the former Eastern Bloc member states, started in HERB №02 (see 25 Years After the Fall: Indicators of Post-communist Science by Ivan Sterligov and Alfia Enikeeva). This essay compares publication output in broad subject fields for all ex-COMECON states, examining complex dynamics of transition across a wide range of different economies and cultures. Presented data highlight major differences between several subgroups of countries.

Introduction

Disciplinary structure of various nations' publication output has long attracted attention of scholars and policy analysts alike. It is commonly understood that this structure is influenced by culture, geography and political regime of a given country but several studies show that for leading countries, this structure is often similar. Those countries that are catching up, i.e., quickly increasing publication output, are very likely to shift their disciplinary structure to this dynamic international standard. The most notable exception is Russia. According to Yang et al. (2012),[1] Russia is the only BRIC country that maintained its disciplinary structure in the Web of Science in 1991–2009 virtually the same, while the rest have galloped towards G7 average. Here we present an updated outlook of disciplinary shifts for a broad range of ex-COMECON countries using the wide-coverage Scopus database to find out if this is still the case for Russia. We also examine whether its former allies show similarly conservative trends.

Communist Legacy

To help our readers better understand the following bibliometrics data, we have to first add a few words to our aforementioned outline of Soviet R&D traits. We will focus on the things that use to influence disciplinary structure and those that are still relevant for many ex-COMECON countries.

Soviet academia was vastly different from its Western counterpart in many aspects, one of them being its combination of academic disciplines. Although USSR pursued research in virtually all branches of science and humanities, some were greatly prioritized over others.

To put it simple, strategic weapons and strategic defence were paramount. I. Tamm, L. Landau, S. Kapitsa, N. Semenov, I. Frank, V. Ginzburg — nearly all Soviet Nobel prize winners in the field of STEM were working on nuclear weapons at some point in their careers. A. Prokhorov and N. Basov, who shared this prize for their pioneering research on lasers with C.H. Townes, led two competing large-scale projects on laser missile defence. E. Slavsky, a long-time head of the Soviet nuclear R&D and industry, is believed to have said that his institutes employed more members of the USSR Academy of Sciences than a hundred institutes of the Academy itself.

Soviet leaders understood well that bombs, planes and rockets are impossible without broad-spectrum basic research in physics, chemistry, earth & planetary sciences, and mathematics. By contrast, biology and biomedicine were not nearly as significant and suffered from the consequences of sweeping repressions against geneticists during Stalin's reign. It's important to note that it was possible to publish basic research in Western journals in all STEM subjects but with certain restrictions.

Social sciences and humanities (SSH) were special in a different way. They were afflicted by ideological bias as the Soviet government forced Marxism-Leninism on teaching and methodology. It led to censorship and dismissal of theories alternative to mainstream views. Those who were reluctant to deal with marxist cliches could easily switch to studying all things obscure, like Hittite language, which were deemed harmless by the party, but the scope of Soviet SSH output available to international scholars was very limited.

Other academic systems in the Eastern Bloc wound up very similar to the Russian model, despite their natural and cultural differences. For the most part they were copying the Soviet Academy of Sciences with its broad-spectrum approach and a huge network of research institutes. The focus on megascience and nuclear physics was, however, much less prominent.

Nowadays the remnants of Soviet academies still dominate research landscapes of many ex-USSR countries,[2] while the rest have actively pursued a more EU-oriented approach and significantly changed their disciplinary balance. Larger COMECON countries in Europe (Poland, Czech Republic, Hungary, etc.) were long-established parts of European research community prior to WWII and by the end of the Cold War era combined Soviet and European features. After the collapse of communist regimes, virtually all of them rushed into EU grant programs, which quickly shifted their focus.

Bibliometrical Data and Their Limitations

Before presenting any findings on this balance, we have to highlight their limitations. We have analyzed various countries' publication output using Scopus/SciVal database. This database offers the best combination of coverage, accuracy and scope for measuring scholarly publications across a broad range of STEM and SSH disciplines but a) its accuracy for pre-1996 is not sufficient, and b) it includes only a small share of non-English periodicals from Russia and other states under consideration (about 300 out of circa 4500 Russian journals in 2014 and much fewer for previous years). There is huge bias towards academic output aimed at international audience, which is usually not the case for ex-COMECON authors working in the fields of humanities, social sciences and — to a lesser extent — medicine.

We have used a top-level OECD Fields of Science (FoS) category scheme, as it is a widespread and the most 'official' subject classification in R&D management. Table 1 shows the shares of six major subject groups for major ex-COMECON states in terms of publication count in 2014.[3]

Country	Agricultural Sciences	Engineering & Technology	Natural Sciences	Medicine	Arts & Humanities	Social Sciences
Belarus#	2	35	88	15	1	4
Azerbaijan#	2	38	87	11	2	6
Armenia#	2	17	84	17	2	3
Russian Federation#	4	30	84	15	3	7
Ukraine#	4	42	81	11	1	10
Vietnam	14	27	80	25	1	8
Georgia#	7	14	71	29	3	7
Kazakhstan#	5	16	70	12	4	14
Czech Republic*	12	22	67	37	3	7
Poland*	10	26	67	36	3	6
Romania*	7	29	67	28	6	12
Hungary*	11	17	65	40	5	9
Latvia*#	14	30	65	28	3	10
Germany	8	20	64	44	3	10
Estonia*#	14	18	64	29	9	17
Bulgaria*	14	21	63	29	2	5
Slovenia*	9	26	62	30	8	16
Serbia	12	28	62	36	3	8
Lithuania*#	11	28	59	23	6	22
Slovakia*	12	32	59	27	5	8
USA	7	15	52	51	6	17
Croatia*	11	18	51	39	8	16
Cuba	11	11	46	61	1	7

Table 1. Shares (%) of OECD top-level FoS subject groups for major ex-COMECON countries, Germany and USA, 2014. Document types: "article" and "review". Documents can be attributed to multiple subject groups, so for each country the sum of shares of all subject groups is more than 100%. Source: SciVal. #=ex-USSR, *=EU member. Table is sorted by share of publications in Natural Sciences.

The main distinctive feature of Soviet academia, i.e., heavy investment in natural sciences (mainly physics), is still common for all countries with an average of 68% of all publications being in that area. Former Soviet republics had the highest number of publications in natural sciences (80–96% in 1996) but it has been declining everywhere except Belarus (83% to 88%) and Turkmenistan (80% to 95%).

EU member states have much lower numbers in natural sciences. Their publication rate has declined in the past decade as Eastern European countries were trying to blend into the EU academic system.

Agricultural sciences accounted for just 1–3% of articles and reviews of ex-USSR scholars, and their growth in 1996-2014 was barely noticeable, except for Estonia, Latvia, and Lithuania. Other new EU members demonstrated a similarly pronounced increase in agricultural research. By contrast, Cuba and Vietnam for some reasons have lost slightly in this area.

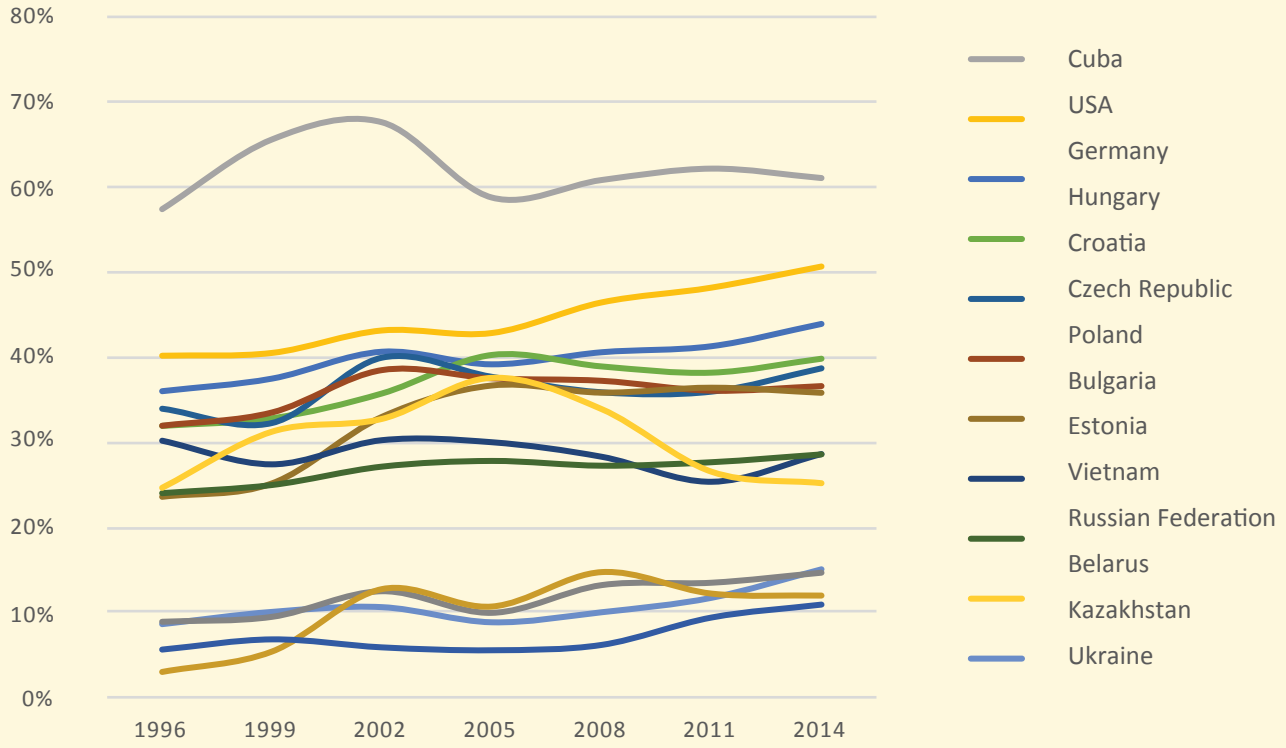

Figure 1. Shares of articles and reviews in OECD top-level FoS subject group 'Medicine' for major ex-COMECON countries, Germany, and USA, 2014. Document types: 'article' and 'review'. Source: SciVal

Cuba stands apart from all other post-communist countries, as medical sciences have always been top priority there. More than half of all Cuban research output is, according to Scopus, devoted to medical sciences. In the past few years this indicator has remained stable at circa 60%. All the other ex-COMECON countries, however, still lag behind the USA.

Nevertheless, post-Soviet medical sciences in EU-oriented states have experienced an internationalisation surge with the number of publications in Scopus-indexed journals rising across the board (with the only two exceptions being Montenegro and Slovakia). The share of medical publications was higher in EU member states and rose on average from 25% in 1996 to 31% in 2014, with the leaders being Croatia, Poland, Hungary, and Czech Republic (all over 35% in 2014).

Former Soviet republics have also shown a noticeable increase but their results remain drastically low compared to Germany or the USA. Such a modest share of medical research output in Scopus for Russia, Belarus, Ukraine ,and Kazakhstan is partly compensated by a vast Russian-language medical journal network. Sadly, these journals — more than 500 in Russia alone — remain unknown the English-dominated global research community.4 This brings us to the problem of local vs. global academic communities, which is crucial for modern ex-Soviet states. According to Russian Science Citation Database (RSCD), which covers virtually all Russian scientific journals, medicine was the second in popularity after economics in terms of Russian-language publication counts in 2014. Each of these two subject groups accounts for more than 50,000 RSCD articles per year, while Russia's total output in Scopus is less than 40,000 articles per year. The current RSCD disciplinary ranking is a reversed version of Scopus ranking for Russia — with economics, medicine, law, agriculture, and educational research occupying top levels.

These are exactly the areas of lowest output shares for Russia, according to Scopus.

In-depth analysis of such a profound contradiction is beyond the scope of this essay. We just have to mention that, while nationally-oriented academic communities in arts and humanities are typical for most non-English-speaking countries, the notion of 'national' medical research is clearly something worrying.

Social sciences in the former USSR republics, almost non-existent in Scopus in the 1990s (possibly due to a low number of indexed journals and English language bias), have experienced a moderate rise from an average of 0.6% in 1996 to 7.8% in 2014, but this number is still lower than in the majority of Eastern European EU members. Social sciences output in those countries has also risen from an average of 3.6% to 11.6% in 2014. Baltic countries are clearly the leaders here: Lithuania (from 2.9% to 21.5%), Estonia (from 2.2% to 17.2%) and Latvia (from 1.5% to 10.4%).

On the whole, our data is consistent with earlier studies. Russia, despite its recent reforms and a major move towards developing world-class universities, has exhibited only modest shift towards typical a US/EU17 research landscape, which is increasingly dominated by life sciences and medicine. The same applies to Belarus, Ukraine, and Kazakhstan. Poland, Czech Republic and other ex-COMECON EU members, on the other hand, had already by 1996 become closer to EU17, and later succeeded in pursuing this integration route.

We also highlight the problem of local vs. global academic communities in Russia, where the structures of national and international research output are partly inverted. This radical difference between Scopus and RSCD data poses further questions and suggests that all bibliometric comparisons should be drawn with due consideration for database limitations.

References

[1] Yang, L. Y., Yue, T., Ding, J. L., & Han, T. (2012). A comparison of disciplinary structure in science between the G7 and the BRIC countries by bibliometric methods. Scientometrics, 93(2), 497-516. doi:10.1007/s11192-012-0695-8

[2] Uzbek Academy of Sciences, for example, still operates 28 research centres including Institute of Ion-Plasma Technologies and Institute of Bioorganic Chemistry.

[3] We excluded all countries with fewer than 500 SciVal publications in 2014.

[4] Several of these journals are included in Scopus but for a large part are indexed so badly that Scopus has no information on author affiliations and addresses, so it is impossible to count them as 'Russian' articles.

Authors would like to thank Gregory Zatsman (Russian Science Citation Database, eLIBRARY.ru) for his help with RSCD data.

What Determines the Divide between Soft and Hard Sciences in Soviet and Post-Soviet Kazakhstan

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Soviet Past

The contemporary divide between hard and soft sciences in Kazakhstan originated in the pre-World War II period, when the republic's research system, embodied in the Kazakh branch of the Soviet Academy of Sciences, was originally established. The Soviet government was very practical in cultivating research capacity of the Kazakh Soviet Socialist Republic. Research priorities were set, infrastructure was developed, and funding was distributed in accordance with the needs of the military, industrial, agricultural, and public health initiatives in the region. Economically, Kazakhstan's primary role was to supply a variety of natural resources for the plants and factories at the later stages of the production process, which were geographically concentrated in the European parts of the Russian Federative Socialist Republic and its western neighbours.

Much of the research activity, conducted predominantly in Russian in collaboration with the Russian Academy of Sciences, was concentrated on the geographic mapping of mineral resource locations, on assessing the composition of the locally extracted ores and rocks. In addition to that, Soviet Kazakhstani research was concerned with the exploration of the most economically efficient approaches to extract minerals out of the ores and rocks. In military-sector-driven research agenda, three lines were particularly important: (a) research related to the exploration of space; (b) research related to nuclear weapons production and testing; and (c) research related to biological weapons production and testing. Given the strategic view of Kazakhstan as the main agricultural production region of the Soviet Union, Kazakhstan had a strong capacity in research connected with exploration of the regional biodiversity, plant and animal breeding, veterinary science, and applied research related to testing of herbicides and pesticides. Finally, as the environmental conditions and health of the local population deteriorated as a result of the implementation of biological and nuclear weapons testing, as well as heavy use of pesticides and herbicides, research in medical

and pharmaceutical sciences started to play a more prominent role in the region.

In general, by the time the USSR collapsed, given the above-described combination of roles in economic and military system of the Soviet Union, Kazakhstan had developed a strong capacity in such research disciplines as chemistry, physical chemistry, material science, astro-physics, astronomy, nuclear physics, biology, geology, ecological science, plant science, veterinary science, and mathematics. In addition to that, Kazakhstan had developed a minor capacity in pharmaceutics and health sciences.

Due to ideological control, true research in social sciences and humanities was virtually non-existent in Kazakhstan. Numerous publications, which were produced by social scientists and researchers in humanities, were severely self-censored, often re-stating the main principles of the Communist Party ideology. In addition to that, data necessary for quantitative analysis was difficult to obtain since it was centrally collected and controlled, and was not reliable due to a high degree of manipulation in the strife of organizations to meet the strategic planning goals set by the government. Qualitative research would be impossible due to the hegemony of one politically accepted ideology. Every citizen of the country was expected to adopt the Communist Party ideals and the ideological control pervaded all social interactions, including any potential interactions with researchers. Any qualitative explorations of larger societal discourse would inevitably reflect the official discourse of the Party documents and public speeches. Hence, social scientists were preoccupied with mere reproduction of the official discourse in their papers directly citing the key speeches and official documents rather than collecting data in the field.

However, to say that social sciences and humanities were completely non-existent in Kazakhstan would not be completely accurate. Having exterminated the national intelligentsia by the 1930s, the Soviet government did invest some effort in the development of linguistics, literary criticism, ethnomusicology, ethnoanthropology, archaeology, and history. All of these disciplines served instrumental purposes of the ethnical policy and ideological control in the country. Linguistics was minimally supported during the early years of the Soviet Union, when development of Cyrillic script and linguistics analysis of the Kazakh language was necessary to achieve universal literacy in the country. Basic understanding of Kazakh literature, culture, and history was important for the development of the official storyline on cultural, social, and political development of Kazakhstan before and during the Soviet rule, which would clearly demonstrate how the Kazakhs had benefited from becoming a part of the Soviet Union. This storyline required only minimal research, which would then be presented in school and university textbooks, as well as in the official public discourse.

Contemporary Period

The divide between hard and soft sciences in Kazakhstan continues to exist nowadays. The analysis of Web of Science publications from Kazakhstan over the period from 1991 till 2011 shows that only 8% (385 out of 4,612) of publications in the country are in social sciences, while less than 1% (7) are in humanities. There are two factors that have contributed to domination of hard sciences over soft sciences in the present-day national research portfolio. One is the legacy of the Soviet times. Kazakhstan used to have a stronger research capacity in hard sciences at the beginning of independence. Despite the fact that numerous physicists, chemists, biologists, and other hard sciences researchers, many of whom were non-Kazakhs, had left the country at the early days of independence, the few that stayed were better equipped to survive the period of limited government funding and demand. Some benefited from past ties with Russian and other Soviet republics' research centres. Some were able to use the interest of the international community in the previously unavailable Soviet research to create new partnerships outside of the former Soviet bloc and to support them through grants from donor agencies. One such example is environmental research on the problems of the Aral Sea and the consequences of the nuclear and biological weapons testing which got support from both the government and the international community. Some researchers were able to reorient towards the needs of the newly emerging private sector, as happened in the case of many chemistry labs testing the content of mineral rocks and ores for new extraction-oriented companies. In addition to that, even during the worst times of the economic turmoil, Kazakhstan and Russia continued cooperation in collaboratively funded nuclear science and space research due to the strategic importance of maintaining military cooperation in the region.

In the later stages of independence, as Kazakhstan entered the stage of oil-driven economic growth and massive reforms, the second determinant of the imbalanced development of research in the country came into play. Much of the reforms package in Kazakhstan, timely provided by international development agencies, has been greatly influenced by neo-liberal reform agenda. National economic development strategy has been based on the endogenous growth theory, which views innovation, knowledge production, and highly productive human capital as the main drivers of economic growth. Constrained by limited public resources, the government set specific priority areas for development in its industrial-innovation strategy, which underlies economic reforms in the country. These areas include some globally pursued emerging broad-application technologies (biotechnology, nanotechnology, IT, new energy), as well as areas that have been forecasted to provide competitive

advantage for the country, including agriculture, and oil and gas sector. Educational and research grants provided by the Ministry of Education, as well as international training and experience provided within the Presidential Bolashak scholarship, are allocated in accordance with the strategic areas identified in the industrial-innovation policy and clearly favor hard sciences. For example, our analysis of the official statistics for the grant period of 2013-2014 shows that only 14% (320 out of 2,273) grants for research projects were allocated to humanities and social sciences. All other things equal, a researcher or student from social sciences or humanities has much fewer chances of being supported with government funding than a natural scientist or a researcher in engineering due to their minor strategic relevance.

The social sciences which do get support from the government of Kazakhstan are essentially the same as in the Soviet times for — ultimately — the same reason: their importance in formulating official ethnical policy and ideology. The only difference is that researchers in the fields are now pre-occupied with re-interpreting the past story of the cultural, political, and economic development of Kazakh-land to provide evidence of greater importance of the Kazakh ethnos and its culture and history than previously argued. In addition to that, linguistics is actively supported too as it plays tremendous role in the present-day language policy aimed at increased use of the Kazakh language in the country.

Finally, two areas of applied research in social sciences are becoming more important in Kazakhstan due to their importance for reforms success. One area is business administration and management, which was non-existent in the Soviet Union and which has, as a result, become highly influenced by and quickly integrated into the international research agenda. An analysis of Web of Science publications in Kazakhstan during the period 1999–2011 shows that business and economics research occupies the fifteenth place (86 out of the total of 4,612 journal publications) in terms of publication count, following a number of historically highly productive disciplines in natural sciences. They are published in both Russian and international business and economics journals. Another area is public policy and political science, capacity building in which was supported by both the government and donor agencies in order to assure basic evaluation of the conducted reforms and to inform subsequent initiatives.

The Plod of Sectorial Higher Education? The Case of Agricultural Universities in Russia

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Sectoral Approach to State Education Policy to Be Revised

The focus on engineering education has become locus communis and subject of special attention on behalf of the state in many countries. In the case of Russia, this trend has its specific features in the context of transformation of the Soviet quasi-corporate model of cadre production for industries.[1] Russia still has a lot of universities aimed at training specialized personnel for particular sectors of the economy that are subordinate to sectoral ministries. Recently there have been a lot of discussions around the new role of sectoral ministries in higher education. Do higher education sectors previously aligned to industries still need some specific state regulation in terms of subordination to corresponding ministries, particular resource management and curriculum? Does sectoral approach have a right to exist in the new social reality and market-shaped economy, and what are the limits and constraints?

This essay addresses the issue as regards to agricultural higher education. We think that our findings might have significance for other sectors of higher education as well.

Machine for Cadre Production: Historical Context

One should understand the history of agricultural education in Russia. The Soviet system of higher education addressed the needs of a centrally planned economy. It was characterized by disciplinary separation, and universities were controlled by sector ministries.

Each ministry had a number of universities that covered rather narrow, fragmented and industry-oriented fields of study, enclosing students into narrow professional framework. By 1990, 896 higher educational institutions (HEI) of the Soviet Union fell under 70 state agencies and organizations. The main role of the state in the economic sphere was planning production volumes through a sophisticated system of calculating input-output intersectoral and interregional balances. This was also relevant to the higher education sector as a sort of industry that produced workforce. The number of students, range of specialization and programs for each institution were planned in accordance with the prescheduled needs of various industries.

The network of agricultural universities had dozens of educational institutions located in all the Soviet republics. According to the Great Soviet Encyclopedia, in 1940, there were 67 agricultural universities (with 52 000 students) and 256 colleges (115 000 students), and by 1975 the number of universities and colleged had increased to 100 and 621 respectively, with the total enrolment of more than 1mln (including 430 000 in universities). Now agricultural education is provided by 59 universities and 43 branches in 58 regions. All of them are subordinate to the Ministry of Agriculture. Besides, there are 27 agricultural departments in the universities under the Ministry of Education, and more than 270 vocational colleges, mostly governed by regional authorities.

Many organizational features have changed since Soviet times: mandatory job placement has disappeared, private higher education and fee-paying education have emerged, state-imposed curriculum has become more flexible. However, the most important features of sectoral higher education remain rather rigid and stable. It can be explained by the fact that the set of these higher education institutions remained under the Ministry of Agriculture that preserved their identity.

Low Competition, Poor Output

Agricultural universities have been affected by declining enrolments and lack of popularity among school graduates. According to recent data (FIS Priem), agricultural HEIs attract comparatively the lowest share of school-leavers from outer regions. Most agricultural universities host less prepared school graduates. The average Unified State Exam (USE) score for full-time students of agricultural universities is 53 out of 100 among state-financed students and 52 out of 100 among self-financed students (the lowest score across all HEI types). None of the agricultural universities has USE average above 70. Thus, the main factor of competition seems to be lowering entrance barriers and attracting local high school graduates who do aren't aiming for better education but rather looking for the safest way to get a higher education diploma.

Agricultural universities attract students with poor STEM background. Only 13% of them score well in math during USE (above 63 points). About 50% of them score below 40. In addition, there are virtually no students with math score above 80. Over 80% of the students score less than 50 in physics. Chemistry exam scores are similarly low among agriculture students: only slightly more than 10% of them get more than 70; about half of them students passed the exam with less than 50 points. Therefore the freshmen of agricultural universities are poorly prepared for the mastering courses in agroengineering and agrobiology.

Poor input leads to low demand from employers and low return on education. There is relatively high unemployment rate among graduates of agricultural majors. More than half of them earn less than 20 000 rubles per month (less than 300 USD), the worst rate among young specialists.

At the same time the question is, does Russian economy need so many specialists in agriculture? According to federal statistics, the average number of the people employed in the agricultural sector in Russia decreased from 7.5 mln to 6.5 mln in 2005–2014, while the number of agriculture students remained stable. Every tenth student in Russia now studies at an agricultural university.

Curriculum and Internal Differentiation

Educational programs in both agricultural colleges and universities still are highly specialized. Specialized training programs usually are rather isolated and inflexible within one university, so the students of different programs get different diplomas. It is common that students cannot take classes outside their departments and are destined to graduate in a pre-determined field of study with specific skills without any options to modify the course of their education. Interdisciplinary courses are still rare. Teaching objectives stated in the curriculum stress the importance of increasing output, with little regard to economic efficiency, product quality, environmental consequences, and technologies of the so-called post-harvesting era.

We see the that one of the reasons for this outdated curriculum is the current structure of the industry. Marketization and land privatization have not yet created a large array of private farms (such hold only 7% of agro-production turnover) to boost demand for agricultural specialists trained to face the challenges of private farming.

More and more courses on social sciences and humanities have been appearing in agricultural universities since the 1990s when the process of higher education massification began. A shift towards more managers and economists tend to push out traditional, engineering-related fields of study. According to university efficiency survey by the Ministry of Education, the share of agriculture students at agricultural HEIs under the Ministry of Agriculture (as classified by UNESCO) is about 48%. Almost one-third of the students of agricultural universities are now studying social sciences.

Such disciplines as economics, law and management (mostly reserved for self-financed students) have become one of the few sources of funding for agricultural universities facing underinvestment. The social sciences programs could also become a source of multidisciplinary approach in these specialized universities. However, the major problem is that they have rather few linkages with the engineering and agronomy programs or with the the best practices in the industry. There is lack of knowledge on new technologies and scientific achievements, on the one hand, and economic literacy to tackle the problems of private agricultural companies on the other. Finally, contemporary agro enterprises need more multidisciplinary skills and knowledge rather than fragmented specialized competences.

Underfunding

As indicated earlier, higher education in agriculture used to be fully state-owned and funded. Now sectoral education has few sources of funding. It has almost lost any financial inflow from the industry. R&D market for the private sector is insignificant. At the same time, unlike many HEIs subordinate to the Ministry of Education, HEIs under other sectoral ministries (e.g., transport or agriculture) have relatively fewer resources and funding as they are, in fact, not included into state programs on education development and research funding (such as the 5/100 excellence initiative, federal and national research universities programs, etc). Even if sectoral ministries understand the importance of education, they usually don't have enough resources.

Conclusion

Sectoral approach to higher education needs revision. Universities, previously attached to plan-driven industries, have become less popular, and are forced to compete for the least prepared high school graduates to maintain their capacity, which exceeds the industry's needs. The problem is deepened by and interrelated with low labor market demand for agricultural specialist. HEIs have failed to adjust to the new economic reality and haven't established links with their new counterparts. At the same time, sectoral ministries have lost their power, opportunities and responsibility over sectoral education. Their underfunded mandates and absence of R&D market alongside with massification process caused a shift to making on-demand social sciences and humanities programs one of the main sources of cross-funding. Thus, agricultural HEIs now often serve to separate segments: 1) state funded and highly specialized engineering programs of low demand and outdated curriculum; 2) more popular but industry-irrelevant, completely student-paid programs in social science.

Agricultural HEIs are forced to seek resources to survive. One way of doing that would be to try match industry needs better. The state should step up as the higher education sector still hasn't accustomed to new market economy. The connection with the sectoral ministry could help build stronger linkages with the industry. The state could introduce some specifically sector-oriented interventions like excellence initiatives and resource concentration, provision of up-to-date research in post-harvesting context, change of curriculum, providing students with the skills that would increase their employability.

References

[1] Froumin, I., Kouzminov, Y., Semyonov, D. (2014). Institutional diversity in Russian higher education: revolutions and evolution. European Journal of Higher Education; Vol. 4 Issue: 3, p. 209-234. doi: 10.1080/21568235.2014.916532.

The Dominance of Social Sciences in English-Medium Instruction Universities in Central Asia

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This brief analysis of course offerings at three Central Asian universities that teach almost exclusively in English (known as English-Medium Instruction, or EMI) – Westminster International University Tashkent (WIUT) in Uzbekistan, the American University of Central Asia (AUCA) in Kyrgyzstan and KIMEP[1] University in Kazakhstan – identifies a strong trend towards social sciences, driven both by the universities themselves and by the context in which they operate. I do not attempt to unpack the role of EMI as part of the process of internationalization in higher education (see e.g. Doiz et al. 2013) but use this elite sub-set of Central Asian universities to demonstrate a remarkably clear disciplinary trend, one that would not be found in other institutional groupings in the region but which may have greater similarity with EMI universities around the world.

Operational Context

The three universities have a striking number of commonalities. They are all private institutions founded within the first decade of independence, and are all based in the capitals of their respective host countries. Each university is considered to be highly prestigious: admission — although fee-paying — is strongly competitive, attracting well qualified students from Central Asia and, increasingly, from the countries around the region such as India, Turkey, and Russia. In that sense, these universities are elite institutions admitting the best students based on merit and generally offering generous financial aid to ensure that household income is not a barrier to entry. In addition, each institution is accountable to multiple players — not just the international bodies with which they work, including funders, accreditation agencies and partner universities, but also to their respective Ministries of Education, which, despite the fact that these universities don't receive state funding, still have control over a range of functions.

The Dominance of Social Sciences: Three Propositions

In terms of disciplinary offerings, there is a clear trend towards social sciences courses, in particular those connected with finance/economics and business/related disciplines (e.g., marketing)[2]. With a wider range of courses, AUCA is the only institution that delves into the realms of humanities and sciences, although it too concentrates primarily on social sciences. In analyzing why these EMI universities are so driven towards the social sciences, three propositions are offered, each of which locates the role of the university as part of broader processes in different ways:

1. EMI universities operate within regional context shaped by their Soviet heritage

WIUT, AUCA and KIMEP would not have existed under the Soviet Union as private fee-paying institutions but it can also be argued that they would not exist unless Soviet rule had preceded independence in these Central Asian countries, a period when literacy rates became near universal (which is still the case) and higher education developed exponentially after the Second World War with the expectation that students would qualify in professions that would help reconstruct and develop the economy (Shpakovskaia 2007).

This latter concept remains and has — since independence — become geared towards developing a market-driven economy. This can be seen in the concentration on 'professional sectors' (DeYoung 2008) in such courses as accounting, law, and journalism; EMI universities were not set up to offer a range of alternative disciplines. It can be argued that offering vocationally driven subjects drawn from social sciences is part of the regional educational discourse, according to which Central Asian universities should be oriented towards 'producing highly skilled, flexible labourers to be competitive units of 'human capital' (Amsler 2011, p.110).

2. EMI universities are responding to global socio-political trends

The influx of external organisations into Central Asia (and other former Soviet countries) in the last decade of the 20th century played a pivotal role in the development of these three EMI universities. Amsler argues that this has shifted dependency from the Soviet center to international organisations, development bodies and foreign governments that seek to shape the newly independent countries' social and political landscape by influencing their education reforms (2011, p.101). This dependence has a strong impact on the education that universities seek to provide.

On the other hand, Heyneman suggests that Central Asian states and universities are more instrumental in seeking change — for example, by importing what he calls 'normal social sciences' of the kind previously not offered at Soviet universities (2010, p.78), which now, however, make up the core offering of WIUT, AUCA and KIMEP. Whilst remaining rooted in social sciences, the development of area studies at AUCA suggests that universities are strategically choosing to strengthen their social sciences offerings rather than diversify into other disciplines.

3. As part of the global development of transnational higher education, EMI universities are subject to the agenda of their overseas partners

WIUT, AUCA and KIMEP share many of the characteristics of the now globally recognised model of transnational higher education, that is, 'any education delivered by an institution based in one country to students located in another' (McBurnie and Ziguras 2006). This can clearly be seen in the disciplinary offerings of the universities, which parallel the findings of a 2003 review of transnational higher education offered by providers from Australia, Hong Kong and Singapore. The review found that the most common subject offered by offshore providers was business (broadly defined) with around 50% or more of subjects in this field, followed by IT/computing, humanities, and sciences with around 10% each (Garrett and Verbik, November 2003).

Under this statement, disciplinary trends are not necessarily geared towards the needs of the labor market in each of the countries but are part of a global shift aimed at boosting the 'knowledge economy,' which will become more relevant to countries as their economics become more global (Brunner and Tillett 2007, p.7). At this relatively early stage in their development, there is not a straightforward fourth statement to add about the role of learners in driving subject demand at EMI universities, although it is clear that demand for courses at these institutions is strong, offering as they do 'an immediate globalization passport in new disciplines such as management' (Brunner and Tillett 2007, p.33). As EMI universities mature and grow in institutional confidence, it may well be the case that disciplinary trends — either within the social sciences or

more broadly across the subject spectrum — become more strategically directed by the universities themselves, taking into account the voice of learners as well as that of external stakeholders, such as funding bodies and employers.

Conclusion

Whilst social sciences are clearly dominant at EMI universities in Central Asia, the rationale behind this trend is somewhat more complex. It is driven from above (state policy and regulations), outside (international organisations, processes of globalisation), and, to a lesser extent, from within (by universities themselves). These drivers are located within a context of both the contemporary political situation in Central Asia and the countries' shared Soviet heritage. Despite this unique set of circumstances, these EMI universities have, in fact, more in common with other such universities around the world than with other universities in Central Asia.

References

[1] KIMEP is the Russian acronym for its former name, the Kazakhstan Institute of Management, Economics and Strategic Research.

[2] A full comparative list of courses offered at undergraduate and postgraduate level is available from the author.

Amsler, S., Higher education reform in post-Soviet Kyrgyzstan, in Canaan, J. and Shumar, W. (eds), Structure and agency in the neo-liberal university, Routledge, 2011.

Brunner, J. J. and Tillett, A., Higher Education in Central Asia; the challenges of modernization – an overview, report for the World Bank, 31 January 2007

DeYoung, A. Conceptualising paradoxes of post-socialist education in Kyrgyzstan, Nationalities Papers: The Journal of Nationalism and Ethnicity, 36:4, 641-657, 2008.

Doiz, A., Lasagabaster, D., and Sierra, J. M. (eds), English-medium instruction at universities: global challenges, Bristol, Multilingual Matters, 2013.

Garrett, R. and Verbik, L. Transnational higher education parts 1 and 2, Observatory on Borderless Higher Education, November 2003.

Heyneman, S. A Comment on the Changes in Higher Education in the Post–Soviet Union, European Education, 42:1, 76-87, 2010.

McBurnie, G. and Ziguras, C. Transnational education: Issues and trends in offshore higher education, Routledge, 2006.

Shpakovskaia, L. 2007. Politika vys'shego obrazovaniya v Evrope i Rossii [The Politics of Higher Education in Europe and Russia]. St Petersburg: Norma.

Educational and Career Choices of Technically-Minded High School Graduates that Take State Exam in Physics

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The interest in the issue of technically-minded youth's attraction to engineering education and career paths is currently growing due to the increasing amount of investment in engineering industries made by the Russian government. The topic has become vitally important due to the need for import substitution, and the long-term shortage in qualified engineers. However, the motivation and personal attitudes of the technically-minded high school graduates towards future education and career are not properly monitored or estimated yet.

In order to get an idea about the plans and attitudes of these young people, we have surveyed those taking physics state exam (PSE). PSE is an elective part of the Unified State Exam taken by Russian high school graduates that enables them to enter higher education institutions (HEIs) to study in the fields of physics, engineering, and computer science. Actually, it is one of the most important milestones on an engineering career path.

Are those who choose PSE as an elective exam really enthusiastic about this subject? Is their choice of their future path independent? What education and career path do they envisage for themselves? Our aim was to find answers to these questions.

Research Methods

In order to analyze the motivation and circumstances behind choosing PSE, 1230 respondents from 78 regions of Russia were surveyed, according to the share of school graduates in these regions. The questionnaire consisted of 24 questions, including the filter-question: 'Are you going to take PSE this year?'

"Suppliers" of Future Engineers and Groups of Influence

We have learnt that the choice for PSE is not random for the majority of the respondents. It turned out that for nearly 1/3 of the respondents, the choice for PSE is predefined by the fact that they have been attending a high

school or a class where they studied advanced physics and mathematics. It means that a significant part of the graduates is 'destined' to become physicists, engineers or IT-specialists either at the age of 6-8 (choice of the school) or at the age of 12-14 (selection of the relevant class profile). The majority of the respondents (72%) admitted that they had made an independent choice of their future educational path and hadn't fallen under the influence of any group (i.e., parents, relatives, teachers, classmates). The most "independent" group among all is the participants of profile academic competitions for high school students, known as profile Olympics (POs), since 80% of the members of this group claim that their choice is free from others' influence. Even though the most important source of influence for the school graduates taking PSE is "parents and other relatives," they determine the future educational path for 21% of all the respondents and 14% of those who participate in POs. The opinion of classmates and teachers has barely no impact on the respondents' educational choice: 2.7% overall and 2% among the participants of POs. Even if one's future educational path was in fact modified by several groups of influence, we can conclude that the majority of those who take PSE have the feeling that they have made their choice consciously.

Is Physics a School Subject that They Really Like?

The answer to this question is, 'Yes, it is'. 72% of respondents consider physics as one of their favorite subjects. Math is among the favorite for 70% of the respondents, and computer studies — for 23%. This confirms indirectly that the PSE choice is indeed a voluntary and motivated act. It is vital to mention that non-technical subjects, such as Russian language (18%), foreign language (12%), literature (10%), and history (9%), are also among the favorite. The results give us hope that these students will also succeed at developing their soft skills. The feedback we have obtained can also help modify and extend the ways of efficient career guidance; it shows that comprehensive approach to engineering education, at least during the first years of high school, could be of great value.

Engineering: Not the Only Option

Data analysis results reflect the diversity of educational paths chosen by high school graduates that take state exam in physics. 62% of respondents want to become engineers, while 38% prefer physics or computer science. Interestingly, the share of "future engineers" among POs participants is lower than in the whole sample (54%). This fact marginally proves the assumption that the best high school graduates don't find engineering too attractive.

Participants of Physics & Maths Olympics Want to Learn More

According to our data, 73% of the respondents already have an opinion about the level of education they ultimately want to get. Speaking of the participants of POs, they are significantly more interested in long-term in-depth learning: 27% of them are willing to get a master's degree (compared to 18% in the total sample), and 11% want to get a PhD (compared to 6% in the total sample). Such high level of motivation for learning puts a heavy responsibility on HEIs. HEIs should do their best to stimulate the desire of talented students to master new competencies, capture and cultivate the interest for learning and doing science.

Future Career Planning

Unclear employment perspectives are the main problem for high school graduates interested in physics. One of our survey questions was dedicated to the respondents' future career plans. According to the results, 35% of high school graduates taking PSE are planning to make a career in the field of engineering/physics or computer science. 27% want to become managers in the same field. 12% of the respondents want to be entrepreneurs, and only 7% intend to become academics.

Conclusion

The overall quality of high school graduates who take PSE remains unstable from year to year. The average PSE score in 2011–2015 was 49.7 out of 100, while the average score for the state exam in social studies (which allows one to study economics, psychology, sociology, management at HEI level) was 55.4 out of 100. On the other hand, the amount of graduates taking PSE is quite high (about than one-fifth of all high school graduates that take the Unified State Exam). It is only rational that HEIs should try to attract the best graduates. At the same time, their ability to attract and retain talented technically-minded young people varies depending on their brand power.

In order to win the competition for the most talented high school graduated interested in physics, HEIs — together with industrial enterprises — should focus on building cooperation with high schools that offer advanced physics and mathematics. The main goals of such cooperation could be:

- To make the potential career paths clear and attractive for technically-minded high school students;
- To show the target audience the opportunities of combining technical competences and soft-skills (the source of lying in the humanities, which few students enjoy);
- To differentiate the engineering path from other alternatives and to show the self-actualization perspectives based on a positive mid- & long-term labor market demand;
- To provide specially tailored professional guidance programs for talented technically-minded high school students that win relevant academic competitions.

Some Observations on the Subject of Dissertation Fraud in Russia

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Russia has become notoriously known for the fraudulent practice of awarding fake PhDs to prominent politicians, businessmen, and all sorts of crooks who wish to use their impressive new degrees to achieve faster career success. Academic titles are widely traded; the business, entirely based on falsified dissertations, has actually become an institution that is well-integrated into the contemporary Russian political system. In early 2013, experts, researchers, and journalists came together to establish the organisation called Dissernet. It is a free association aimed at countering fraud and trickery in the academia, particularly at the stage of defending dissertations and awarding PhD. By mid-2015 Dissernet activists had identified over 3500 falsified dissertations. Statistical data they have collected allows us to draw a number of conclusions regarding the issue at hand, which I will present in this paper.

It is worth mentioning that Western societies already have extensive experience in identifying plagiarism through the work of network communities. VroniPlag, for example, a German project, has already helped identified hundreds of plagiarised dissertations in the past several years. The approach of our Western colleagues is, however, different from that used in Russia. In the West, the term 'plagiarism' (from plagium — which literally means 'theft' in Latin) is used in its original meaning, i.e., an intentional and unlawful incorporation of other people's texts or ideas into one's own text or research paper. Yet in Russia, most of the authors under scrutiny by Dissernet have never really done research; they have, most probably, never written a single page of their dissertations and might have never read them or even seen them at all. Such 'dissertations' are usually nothing else but a mere compilation of other people's texts. It is therefore important to distinguish between plagiarism in its original sense and falsification or fraud. Here is a classical example of how such dissertations come about: a dissertation can be written and defended at the sociology department, later to be passed to another PhD-candidate who will defend it at the economics department of the same university. In essence, the second 'defence' is only different from the first one in terms of whose name stands on the title page. Sometimes the second candidate will change the subject of his or her 'research' too — usually by contextually substituting some terms. For example, one notorious 'scholar' transformed a dissertation about confectionary industry into a dissertation about beef-and-dairy industry by substituting 'dark chocolate' with 'home-grown beef,' 'white chocolate' with 'imported beef,' and 'nut chocolate' with 'bone-in beef'. In the meantime, all the data, spelling, tables and pictures remained unchanged. Sometimes such authors also 'update' the dating of the statistics they refer to, thus making their 'research' seem to have been conducted recently.

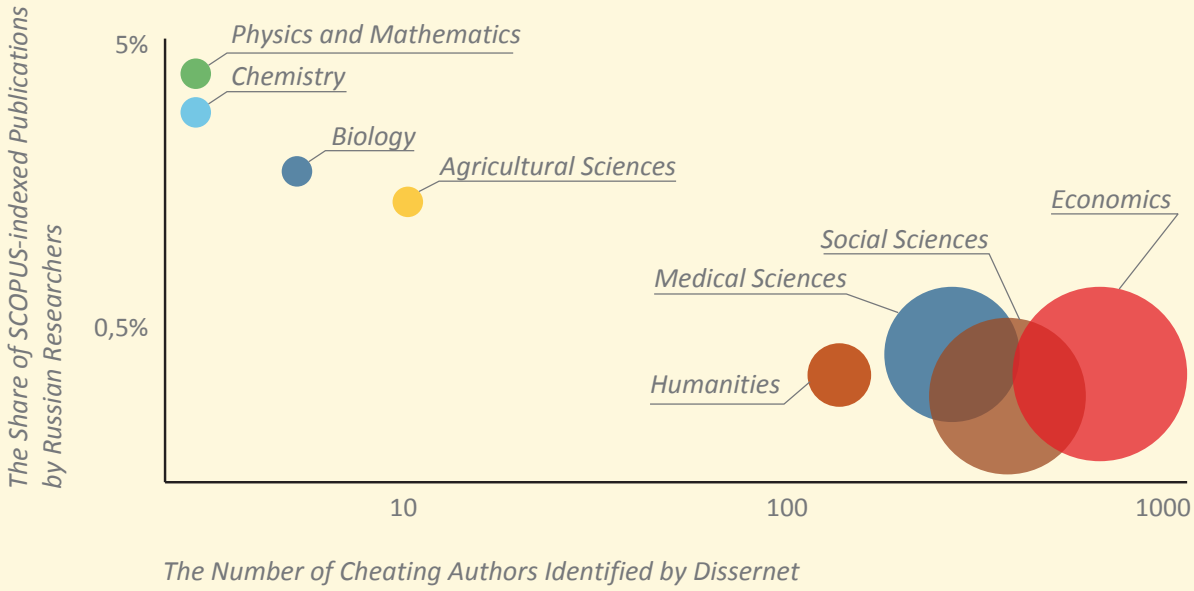
Scallywags prosper in the academic areas where Russia is still lagging behind. According to Dissernet statistics, the amount of fake dissertations varies significantly between different academic fields. Most of the fake dissertations (40%) accrue to economics. Other popular spheres are pedagogics and law, followed by medical sciences, political sciences, engineering, and social sciences. Fake dissertations are rare in the area of natural sciences. Such distribution is symptomatic as it represents Russia's main problem areas: economy, law, education, etc. Moreover, according to SCOPUS data, the amount of fake dissertations per field is inversely related to Russia's international input in these disciplines (see Fig. 1).

The scale of forgery in the academic sphere in Russia shows that it is not just some fringe phenomenon but an integral part of Russia's statehood. Geographically speaking, fake dissertations are mass-produced primarily in Moscow — Russia's political and business capital, and in Saint Petersburg rather than somewhere on the outskirts of the country. Other cities and towns fall behind. The scale of falsifications in the Caucasus region is record large but on the whole, their share in national statistics isn't that high.

The two leaders in terms of the number of fake dissertations and falsified research papers in the past 10-15 years are Moscow State Pedagogical University and The Russian Presidential Academy of National Economy and Public Administration. The former became notorious due to a dissertation committee on historical studies that turned out to be a conveyor unit for 'PhDfying' politicians and history teachers, while the latter 'PhDfied' a lot of public officials. Other leaders include Russian State University for Humanities and Russian State Social University, as well as the country's major institution — Moscow State University. Russian Academy of Sciences ranks 23rd on the list (represented by its Caucasus-based branch). In other words, the market for academic fraud reflects the situation in the country's higher education system on the whole.

Fraud in soft sciences usually means broad-scale plagiarism, while in hard sciences it is often limited to some very narrow subjects, i.e., the scale is much smaller.

Figure 1



One such example is a series of dissertations on Carabidae (ground beetles), all defended at Dagestan State University. The range of topics included: Carabidae of the Kurush Massif, Carabidae of Sarykum Sand Dunes, Carabidae of Dzheyrakh and Targim Basins, Carabidae of the steppes and low-mountain areas of Dagestan, Carabidae of the Nukatlin Ridge, etc. Each such dissertation resulted in a new PhD in biology. Certainly, the arthropoda of each and every dune deserve to be studied. Yet such work is nothing more than that of a research assistant who merely collects necessary specimens, therefore such dissertations are rather poor in terms of contents. They normally share the same structure: a long introduction with an extensive literature review, usually copied from someone else's work; a short main part, just some dozen pages long, consisting mainly of several tables with the statistics regarding the number of beetles caught, and a standard conclusion. The lack of any real research behind such dissertations is also evident from the fact that they all have the same bibliography. Unfortunately, biology isn't the only discipline affected by this phenomenon.

The truth is, fake dissertations constitute just the tip of the iceberg of fraud when it comes to science and education in Russia. According to Higher Attestation Commission (VAK) norms, PhD candidates also have to have dissertation-related publications in academic journals. Logically, if one's dissertation is plagiarised, they simply cannot have original academic articles. Therefore, many of the articles, monographs, and textbooks published in Russia are nothing but a compilation of non-original work. It is no secret that hundreds of journals recognised by VAK make authors pay in exchange for publishing their articles. None of such journals could ever make it into respectable global bibliographic databases. Less than 10% of all Russian journals, for example, are listed in Web of Science and Scopus.

Dissernet has built a unique database of plagiarised dissertations and has developed a semi-automatic algorithm that can check whether the editors of commercial academic journals have something to do with dissertation fraud. It turns out that editors of many low-impact journals actually work for dissertation committees whose name has already been tainted, and even are members of various VAK expert councils, thus covering up fraud. Such a pattern is typical for all disciplines that have been affected by this plague of major academic transgressions.

Philosophers on Chairs. How Did the Organizational Structure of Russian University Bias post-Soviet Philosophy?

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Introduction

Philosophy played a very specific role in the Soviet system of science and education. It was the major discipline responsible for the ideological support of the political regime. What happened to philosophy after the collapse of the Soviet Union? According to statistics, the number of universities in the Russian Federation that offer educational programs in the field of philosophy increased almost 10 times in the post-Soviet period: from 5 to 47. How can we explain this growth and what does it mean in terms of the dynamics of disciplines within the scope of humanities? The goal of this article is to answer this question intentionally leaving ideological issues aside and focusing on the organizational aspect. The thesis We claim that the organizational structure of philosophy departments, the so-called "chair system," typical for Soviet universities, is helping philosophers today to overcome the crisis of professional self-identification after the Soviet philosophy lost its credit. But the chair system that divided knowledge into sub-disciplines has also led to the development of academic standards that differ from internationally accepted ones.

Chair System at a Soviet University

A center of philosophical education at a Russian university is a so-called 'philosophy faculty' (fakultet), or department. Like other departments of post-Soviet universities, philosophy departments are organised around so-called chairs (kafedra). This chair systems, going back to the 19 century, originated from the German academic tradition. A German chair (Lehrstuhl) is an organizational unit within which all non-professorial faculty and some (if any) staff members are subordinate to a single person occupying a regular professorial position. Such a unit has two models: the chair model and the department model. The latter does not have a position of leading professor, and personnel is employed directly with the department. Soviet higher educational system retained hierarchical elements of the chair system but the number of permanent academic position per chair was substantially expanded. In this respect, a chair at a Russian university can be compared to a department. Just like in a department, the staff of a chair is occupied with one subject area. Usually one department unites several chairs. From this point of view, a department at a Russian university looks like a school or department at a Western university, e.g., school of law, department of social sciences, etc.

Philosophical education doesn't have a long history in Russia. It was introduced in 1940, during Stalin's era. Among the universities of the Russian Empire, only Moscow University did for a short time — from 1906 through 1913 — offer a special educational program in philosophy, though philosophy or philosophy-related disciplines, such as logic and psychology, were compulsory for all the students of the empire. For this purpose, philosophy chairs were organized at universities. Specialization in philosophy was only available at the level of postgraduate studies.

In the 1920s, under the Soviet rule, the core of philosophical knowledge changed to match the new ideological style. In the new context, the system of obligatory philosophy courses expanded to cover all programs of higher and post-graduate education. In addition to chairs, philosophy departments were organized at some universities. The first four philosophy departments in the Soviet Union were opened during the 1940s. Two were in Russia, in Moscow and Leningrad, the other two — in Kiev (Ukraine) and in Tbilisi (Georgia). During this time the geography of philosophy as a separate specialization broadened. Two more departments were established: one in Sverdlovsk (now-Ekaterinburg) in 1966, and one in Rostov-on-Don in the 1970s. In the very beginning, the original four philosophy departments had a similar organizational structure. Each of them consisted of about four chairs. As years passed, their number increased. The one at Moscow State University became the biggest: by the end of Soviet times, in 1989, it consisted of 17 chairs; one of the smallest philosophy departments — in Rostov-on-Don — had 8 chairs. The names of chairs in different universities were often identical, though chairs at smaller universities could have multiple specialization. In Rostov-on-Don, for example, there was a chair of logic, ethics, and aesthetics, while at Moscow State University there was a separate chair for each of those subjects.

New Disciplines and Academic Entrepreneurs

The Perestroika and the post-Soviet period brought some changes. We can identify two strategies of organizational development common for philosophy departments during the time: 1) renaming (or rebranding) of the chairs; 2) clustering and removal of some social disciplines further from philosophy. Let's describe them in more detail.

1) The crisis of legitimacy of Soviet philosophy in the post-Soviet period led to renaming of chairs, which didn't bring with it any changes in faculty or in hiring policy. Thus, for example, the chair of dialectic materialism at the philosophy department of Moscow State University became first the chair of 'theoretical philosophy,' and then the chair of 'ontology and theory of knowledge'; the chair of historical materialism 'switched' to 'social philosophy'; and the chair of the history and theory of a scientific atheism turned into the chair of 'religious studies'. The only chair removed was that of the history of Marxism-Leninism.

2) Soviet interpretation of philosophical education promoted the idea of academic differentiation in social sciences. The first discipline that was separated from philosophy was psychology. The original chair of psychology at Moscow University was transformed into a subdivision in 1947; then, in 1966, it became an independent department (fakultet). Some of the chairs created in the late 1960s–1970s were later transformed into blocks of 'sociological chairs' that became a separate sociology subdivision in 1984 (and in 1989 it was transformed into the department of sociology); in 2008, the chairs related to political science were eventually transformed into a separate department too. Disciplines like sociology, political science and psychology emerged from former Soviet chairs. For this reason they do not completely match their Western equivalents.

However, sociology and political science are not the only disciplines that hardly correspond to Western equivalents. The most evident examples of such disciplines at post-Soviet universities are 'religiovedenie' (religious studies) and 'kulturologia' (cultural studies). 'Religiovedenie' as a post-Soviet discipline can be traced back to 'scientific atheism' that was taught in the late Soviet times as part of the official anticlerical policy. The emergence of 'kulturologia' in the 1990s is an example of philosophy transforming into a new discipline.

The fall of ideological control combined with lack of financial support from the state turned many faculty members into a sort of academic entrepreneurs. Student body in Russia split into two groups: state-funded students (constituting a majority) and self-funded students. Academic institutions were forced to compete for benefits from the government while trying to balance the budget by mixing two types of students. The problem is that self-funded students are often the ones who scored lower during admission exams (which were some years ago substituted with the Unified State Exam). They are usually not very successful at studying as well. In other words, this academic entrepreneurship is — in most cases — not about competition based on research and teaching excellence but about getting access to government resources and attracting more students who can pay.

Lack of freedom from ideological clichés on the one hand, and lower academic standards on the other, have placed bureaucratic issues related to educational standards in the center. The chair system has played a substantial role in this process. A special organization based at Moscow State University — a teaching methodology unit — was set to develop educational standards. They served as a benchmark for all the related chairs or programs in most Russian universities. The specific history of the discipline and the big role of bureaucracy have locked these programs to national academic labor market.

Chairs: with or without?

Western-oriented universities that were opened after 1991, such as The European University at Saint Petersburg (1994) or Moscow School of Social and Economic Science (1995), were avoiding opening educational programs in philosophy for a long time. The two philosophical departments established at these new universities declare themselves as providers of international educational standards. Russian State University for the Humanities opened its philosophy department in 1992, National Research University — Higher School of Economics — in 2007. Structurally they are very similar to the already existing philosophy departments at other Russian universities. Both of them have chairs of ontology and theory of knowledge, social philosophy, and history of philosophy. These cases illustrate institutional inertia that prevents the disciplines from internationalization. However, the institutional setting of Soviet and post-Soviet traditions weaken with time, and new institutional reforms in education are being introduced. We can, for example, see radical changes in case of HSE philosophy department. During the recent reorganization, all the chairs were united into one school of philosophy that became a part of the faculty of humanities. This can be seen as a trend towards successful internationalization.

Teaching Humanities at the Joint HSE/NES BA Program in Economics

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National Research University — Higher School of Economics (HSE) and New Economic School (NES) in Moscow have developed a joint BA program in economics, which differs from other programs in economics at Russia's leading universities in several ways: first of all, this one is highly competitive, and secondly, those lucky enough to have made it through the selection process enjoy a relatively free curriculum. Nowadays many universities offer their students a range of elective courses or an opportunity to take classes taught at other departments (the experience of Moscow State University is particularly interesting in this respect). And yet, contemporary Russian higher education model, which follows in the footsteps of the Soviet model, is built in such a way that high school students are basically expected to choose their future profession (or at least a broad specialization, such as economics, law, history) at the age of 16-17 already. A person that has been admitted to a regular economics department cannot really change their educational trajectory anymore. The Bologna Process has enabled young people to extend their adolescence by giving them an opportunity to make choices. On the whole, Russia is struggling to implement the Bologna Process, though HSE has been pretty successful on this path, and the joint HSE/NES program is yet another interesting experiment.

When prospective HSE/NES students open the program's curriculum, they might be surprised that economics is not its central part. The importance of English, logic or math is, of course, beyond doubt but what about art history, linguistics, cosmology or history of theater? Graduates of European and American universities with a long history understand that any profession marginally involving discourse or the art of rhetoric has its roots in humanities, therefore it is no surprise that future lawyers studying at Oxford spend their first two years reading classical poetry in order to master Latin. This is not perceived to be snobbish, and no one would deny lawyers, economists, mathematicians or doctors their right to study classics. In Russia, however, the situation is different.

HSE, a bold experimenter, is trying to integrate different subjects into the curricula of different specializations, thus students get a chance to learn something else beyond their main field of study. In this respect, the joint HSE/NES program is not directly innovative.

In order to understand why economics undergrads need art history at all, let's try to imagine what they are like. HSE/NES students are rather special: they have all studied a lot and fought hard to enter the program; they aren't just smart and sharp but self-confident too (in a good way, i.e., not arrogant). I have been teaching art history at this program for four years now, and these are the kind of students I encounter every year. They are very talented and they seem to be even more motivated than the no less talented students from other programs. One year I got to teach a class of 46 at the same time, which was challenging: the front rows were occupied by the really motivated students, who were always more than active during class, while the back rows were occupied by those who had chosen my course because they had thought (quite mistakenly) that it would be an easy one. The program's first class graduated in 2015, and nearly a dozen graduates — including some of my former students — were directly admitted to PhD programs at top US schools, such as Columbia and Princeton. This is a very rewarding result for the program.

Yet, why do these students choose subjects like the one I teach? I believe there might be several reasons: 1) they like the contrast with their core subjects — such as mathematical analysis; 2) art history is by definition something beautiful since it is accompanied by slides showing masterpieces; 3) some students are genuinely interested in art and would like to get a deeper knowledge of the subject; 4) others, especially those with a mathematical mindset (which probably constitute a majority at the HSE/NES program), love science per se and enjoy every challenge. The intention behind combining a wide range of courses within one program is to allow young people to take a shot at various things. The original idea comes, probably, from Ancient Greece, but HSE and NES have been rather successful at implementing it in contemporary Russia, thus bringing to life the long-standing tradition of enkyklios paideia this 'encyclopaedic education', born in Aristotle's Athens.

I am rather sceptical about the dominance of economics in the modern system of values, but the HSE/NES experiment shows that when the country's best talents are drawn to such a program, it is beneficial for my discipline too. The papers and presentations prepared by HSE/NES students are in no way lower in quality than those prepared by the students majoring in history. However, HSE/NES students are much more demanding in terms of the clarity of the evaluation criteria used by the teacher, which helps me improving my course.

Surely enough, arguments break out during class from time to time because discussing a painting is different from solving an equation, and therefore, the opinions I voice might be less objective than those of my colleagues in other disciplines. Some students even start arguing or get emotional about a mere 3% of their final grade, which rarely happens

with history majors. Nevertheless, I do understand that the former have every right to worry about each and every percent they get because that might later become the crucial factor that would decide whether they are admitted to Harvard or other prestigious university or not. This is just a downside of the ultimately healthy quest for top education, leadership and success. Does it mean, though, that liberal arts, which are quite specific, could be transformed into something different, definite and clear-cut, with some simple evaluation criteria? Would, for example, asking the students to name ten 17th-century Flemish artists in 30 seconds be a valid test? Perhaps. Yet the idea is to teach them to distinguish between etching and lithography, between painting and drawing, between blue-black and coal-black, and to be able to discuss art in a well-reasoned and coherent way. This is not an equation at all.

In any case, I hope that HSE and NES continue trying to bring up if not the Renaissance-style uomo universale but at least a broad-minded future elite that is capable of tolerating alternative opinions and points of view.

Who Takes HSE Courses on Coursera? The Differences between Economics, Humanities and Math-Intensive Courses

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The rapid expansion of massive online open courses (MOOCs) has raised a number of questions about this new phenomenon. One of them is: what is MOOCs audience like? While there are some studies on who uses MOOCs, there is very little discussion whether the participants of MOOCs are a homogeneous body or rather a highly differentiated group. According to the classics B. Clark and T. Becher, higher education system includes a set of worlds defined by institutional and disciplinary differences. Since MOOCs participants don't necessarily belong to any institution, an institutional ground for differentiation doesn't seem to be relevant. But a disciplinary one might still be in place. Then one of the reasons to think that there are "small worlds" within the world of MOOCs users is the extreme disciplinary diversity of online courses available. Institutional research office at Higher School of Economics (HSE) has carried out a range of online surveys involving the students enrolled at HSE Coursera courses, and has compared the participants of the courses on economics, social sciences & humanities, and on math & data analysis.

We have collected data about the audience of 17 courses that took place in 2014–2015. A questionnaire was sent to each person who had signed up for any of these courses. We have received 43,151 responses. All the courses were divided into three groups: 1) economics, 2) social sciences/humanities, and 3) math-intensive courses. The first group (N=16,548, 38% of the sample) included: Institutional Economics, Financial Markets and Institutions, Industrial Organization, Microeconomics Principles, Fundamentals of Corporate Finance, Microeconomics and Public Economics. Comparative Politics, History and Theory of Media, Economics for Non-economists, Philosophy of Culture, History of Economic Thought, and Understanding Russians were matched to the second group (N=14,594, 34% of the sample). "Math-intensive" courses (N=12,009, 28% of the sample) are represented by Linear Algebra, Game Theory, Econometrics, and Core Concepts in Data analysis. We compared the audiences of these three groups with regard to their socio-demographic and educational background, and their motivation to participate in the course.

According to our data, male and female MOOCs participants tend to have different preferences. Not unexpectedly, math courses have a much larger share of males than females, while the social sciences/humanities group is more female. With 57% of male audience, economics is closer to math. Thus, the patterns of subject choice on Coursera in terms of gender differentials seem to be pretty similar to those observed at traditional higher education institutions where humanities normally attract more girls and math-intensive majors get more boys.

Table 1

	Economics	Social Sciences/ Humanities	Math/Data Science
Male	57%	45%	62%
Female	43%	55%	38%

As for age, the math-intensive courses audience is the oldest among the three groups with an average age of 30.74. Those who choose economics are the youngest – 29.45 years old. The humanities group is slightly younger than the math group – 30.66 years old. Math students also have the highest age range within their group (the group with the highest standard deviation).

The biggest share of HSE Coursera students are from Russia. However, the percentage of foreign participants varies depending on the language of the course (with a bigger share of international participants joining courses taught in English) and on the disciplinary group. The highest percentage of foreign students among the courses taught in Russian is observed in economics — 36%. The share of non-Russian students in humanities and math-intensive courses is smaller — 30% and 29% respectively. Similar findings are valid for English-language courses. The most popular HSE course taught in English among foreign students was Public Economics with 97% of the participants coming from outside Russia, the second most popular — Understanding Russians with about 86%.

One possible explanation is related to the university's name and brand. We suppose that some part of Coursera audience has very limited information about universities. If so, then the factor of name, which in our case is very disciplinary-oriented, can play a crucial role in the process of choosing a course.

There are no significant differences across groups in terms of the students' occupation status. The only interesting observation is that those enrolled in social sciences/humanities courses are more likely to have no regular occupation (neither work nor study): 11% versus 7% in other groups.

We have also compared the three sets of students by the type of their motivation to take MOOCs. Bearing in mind the distinction between intrinsic and extrinsic motivation, we have analyzed the responses to the question about the reasons for choosing this or that course. To figure out the motivation type, we have identified two clusters of reasons. The first one is characterized by the prevalence of extrinsic motivation. That means that a course is chosen with a purpose related to some external reinforcement, such as getting credentials, desire to communicate with other participants, wish to listen to a particular professor, etc. The second cluster includes the reasons that deal more or less with personal interest in a subject.

Math-intensive and humanities courses differ significantly from economics course by the type of student motivation (Table 2). While economics courses have more of those who start with an extrinsic motivation, i.e., with the idea to benefit from the course in this or that way, math-intensive and humanities courses have a relatively high percentage of students who have applied simply out of personal interest in the subject.

Numerous studies on the role of motivation in the traditional (offline) learning process show that motivation type is an important factor of student engagement. The question whether it is the same in MOOCs needs further research and is important for understanding the reasons why people drop out, particularly in economics, where the share of participants with intrinsic motivation is relatively low.

Table 2

	Economics	Social Sciences/ Humanities	Math/Data Science
Extrinsic motivation	60%	54%	52%
Intrinsic motivation	40%	46%	48%

To sum up, HSE audience on Coursera is not homogeneous. It varies considerably across disciplines by gender and type of motivation for enrolment. Moreover, there are slight differences in terms of age and country of origin. However, part of these differences seems to be the same as those observed in offline education. We believe that, no matter whether online or offline, females are still underrepresented in math-intensive courses, while economics attracts a lot of students who choose this subject not only out of personal interest.

If so, there is an intriguing question: why are the patterns of choosing a discipline (or a course) so similar? Given the fact that there are fewer boundaries online than offline, and that almost anyone can join any online course at Coursera, one could have expected that course selection would be different and that offline patterns of choosing a discipline would be eroded. Yet, according to our observations, gender patterns are robust enough to be valid in online education too. One also could have thought that Coursera attracts more people who are just interested in learning something new but we see that in case of economics, there is a big share of those who are willing to get some credentials, although for now Coursera certificates aren't recognized as widely as university diplomas. A possible explanation is that the perception of different disciplines that is common offline persists even when it comes to online education.

Engineering Education and Language Training at a Technical University: A History of Friendship

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Tomsk Polytechnic University (TPU) has a lot of experience in teaching technical fundamentals and English in an integrated manner, though such kind of collaboration is still rare in Russian technical universities. In this essay we would like to give a brief overview of the TPU case.

How It Started

When the Iron Curtain finally fell in the early 1990s and Russia suddenly realized the need for communication with other countries, the quality of language training in national universities was very low and did not meet the requirements of the new era. That was the time for diverse urgent attempts to make the society speak English in a wink of an eye. In the 1900s–2000s, Tomsk Polytechnic University pioneered many new approaches towards enhancing its graduates' communicative skills, and started implementing its new language strategy, which covered the period between 1998 and 2005 (Chuchalin et al).

In 2005, about 360 foreign language teachers worked at TPU, with the total faculty count reaching about 1,700. One of the main features of the new strategy was a significant increase of the language workload in non-linguistic programs (~800 academic hours for 4-year BSc programs, ~400 academic hours for 2-year MSc programs). This was the time when understanding between TPU linguists and technical instructors first originated.

From Collaboration to Friendship

Beyond doubt, one of the most valuable experiences in the history of aligning language and engineering training at TPU is the practice of collaborative teaching, known at the university as pedagogical partnerships, or 'tandems'. The experiment lasted 7 years. Engineering and linguistic faculty combined their efforts to deliver English for Specific Purposes (ESP) courses tailored for particular engineering fields (e.g., English in Computer Science, English in Nuclear Physics, etc.).

It is important to note that both linguists and engineering faculty actively participated in the design and implementation of 'tandem' courses. The cooperation between linguists and the rest improved greatly after the 2010 TPU reorganization, when multiple departments and divisions were restructured into Institutes for Research and Education in line with the university's priority areas, each institute getting its own specialized foreign languages department.

On Intrinsic and Extrinsic Motivation

In 2001, TPU started developing joint MSc programs in cooperation with leading European universities. English as a medium of instruction in half of the courses of each double degree program became a powerful factor in motivating students to study the language. A special course of English for Academic Mobility immediately became popular.

In 2004, TPU introduced a system of elite engineering education (EEE) for the most talented and motivated students. The essence of EEE at TPU is that students who have successfully passed a special competitive selection process are offered in-depth courses in natural sciences and mathematics, economics, foreign language, and a number of other disciplines that develop creativity, communication, and leadership skills. The distinctive feature of training elite undergraduates is their R&D work commissioned by Russian and international enterprises with their subsequent employment by these companies. About 200 students are selected annually for the EEE program, which makes approximately 10% of the first-year engineering students cohort. For the time being, about 1,600 students have participated in EEE courses at TPU; 250 students have successfully completed the program, and 450 students are currently enrolled.

Another motivating factor appeared in the form of the final qualification paper. Since 2007 all TPU graduates in MSc programs must (and those graduating in BSc programs may) prepare at least 20% of their thesis (qualification paper) in English. This practice has seen some modifications but remains effective to the present day.

From Top-Down to Bottom-Up

Since TPU management initiated collaboration between linguists and engineering faculty at the university 20 years ago, this cooperation has acquired strong traditions and gained a lot of support. Today it can be illustrated by the fact language instructors started developing ESP courses on the basis of Massive Open Online Courses (MOOCs) in the 2013/14 spring semester. It became clear at early stages of the initiative already that its efficiency could be improved if the project addressed not only linguistic

aspects but engineering knowledge and skills too. The idea triggered great interest and was consistently supported by engineering departments. Thus a naturally integrated approach to teaching ESP based on MOOCs was created.

In this experiment, language training ceased being an isolated element of engineering programs and directly contributed towards common learning outcomes. The course was offered in weekly cycles when students learned new concepts and did assignments online, and then participated in in-class discussions and seminars followed by short reports. Teaching effort was shared in the following way: engineering faculty would shortlist courses with appropriate content, advise students on technical concepts, and later hold final tests, while language teachers would advise on the appropriate language level, hold weekly lessons on linguistic issues, and check the students' short reports. Noteworthy is the fact that support on behalf of engineering departments in the delivery of these MOOC-based ESP courses was requested by language teachers and did not require any administrative support. What was initially a top-down approach bore fruit.

Concluding Remarks

In 2015, TPU ranked among top-5 BRICS universities in terms of internationalization according to the QS University Rankings1. Nowadays 100% of the students graduating from TPU MSc programs have to present part of their thesis in front of the state certification committee in English. Over the last 5 years TPU students have regularly won prizes in foreign language competitions for technical students of various levels2. They also prepare research and conference papers in English and introduce projects at international fairs. About 600 TPU students took courses or had internships in 179 international universities and companies in 27 countries in 2014. TPU offers 13 double degree programs with European universities (based in Great Britain, Germany, France, and Czech Republic), with instruction languages being Russian and English. More than 200 individual courses taught in English are now available at TPU.

Just like in any team, TPU language and engineering faculty have different views on many issues. Although today the benefits of knowing foreign languages when building a career in engineering are obvious in the increasingly global world, it was not the case several decades ago. Even now technical instructors disagree with the fact that language courses are given extra time at the expense of engineering modules. They also insist that ESP courses should be arranged around discipline-specific vocabulary and grammar. Language departments constantly justify the need for additional workload and have an inclination towards skill-based (as opposed to knowledge-based) learning. These dilemmas stimulate new projects and experiments. Apparently, efficient solutions should result from joint effort.

References

[1] QS University Rankings: BRICS 2015. http://www.topuniversities.com/university-rankings/brics-rankings/2015#sorting=2407350+country=+stars=false+-search=

[2] Regional Business English Olympiad (Krasnoyarsk, 2011, 2012, 2013); International On-line ESP Olympiad among non-linguistic students of CIS countries (2012); International On-line Olympiad of English in Power Engineering (2012); ESP Olympiad of Tomsk Oblast (Tomsk, 2013, 2015); On-line English Olympiad (2014); Debate competition of the All-Russia Olympiad of English for Technical Students (Moscow, 2015), International Olympiad on Foreign Languages (Krasnoyarsk, 2015), etc.

S. Rybushkina and A. Chuchalin. Integrated approach to teaching ESP based on MOOCs/ Proceedings, 43th Annual SEFI Conference, Orleans, France, 2015.

A. Chuchalin, L. Agafonova, N. Kachalov. Multy-level program for foreign language training at a Russian technical university/ Proceedings, 4th UICEE Annual Conference on Engineering Education, Bangkok, 2001.

For notes

About HERB

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