Plagiarism and Cheating in Russian Universities:

The Role of the Learning Environment and Personal Characteristics of Students

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Abstract. This study aims to find out how plagiarism and cheating as dishonest practices correlate with the personal characteristics of students (e. g. their involvement in learning and research activities) and the specific features of the learning environment. A survey of university students and professors that was conducted as part of the 2014 Monitoring of Education Markets and Organizations provided the empirical basis for research. The impact of factors was assessed using two binary logistic regressions, with response variables describing experiences of cheating and plagiarism. We show that these types of academic misconduct are not affected by whether the university applies formal or informal plagiarism-checking techniques. Professor intolerance to cheating and willingness to apply strict penalties appears to play a more important role in preventing academic dishonesty. The probability of using dishonest practices is also decreased by such factors as intensive preparation for classes, confidence in working in one's field of study in the future, and prioritizing the quality of education instead of its accessibility when choosing a university and major.
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Academic dishonesty, particularly plagiarism and cheating, pose a major problem for the national higher education system. According to the Monitoring of Student Characteristics and Trajectories survey, which was conducted in eight Russian universities in 2013, on average 35% of written papers are downloaded from the Internet, with the rate peaking at 52% in one university. Students seem to be largely tolerant to cheating and plagiarism: only 12% of respondents agree that cheating should be punished with low grades, while nearly half believe a severe reprimand is enough. As little as 2% of students consider reporting plagiarism to the Dean a just punishment [Monitoring of Student

Characteristics and Trajectories, 2014]. The high incidence of academic misconduct and tolerance towards it among students have a number of negative effects for the higher education system as a whole, as well as the personal learning experience of students [Shmeleva, 2015].

Despite the growing interest of Russian researchers in dishonest learning behaviors among university students [Radayev, Chirikov, 2006; Latova, Latov, 2007; Golunov, 2010; Shmeleva, 2015], we did not find any Russian studies that shed light on the reasons for its high incidence. An exception is a work by Yelizaveta Sivak based on a survey of 349 students of one university [Sivak, 2006]. Knowing what motivates students to be academically dishonest and what they need to do to honestly comply with curriculum requirements is extremely important in adjusting education policies so as to eradicate academic misconduct. However, education policies can only be efficient when plagiarism and cheating are in a strong correlation with the existing learning environment.

This study aims to identify the main determinants of plagiarism and cheating in order to understand the roles played by the learning environment and individual student characteristics in solving the ethical dilemma of whether to resort to dishonest practices. The empirical basis of research includes data on 99 universities collected during the 2014 Monitoring of Education Markets and Organizations survey.

1. Research Hypotheses

Determinants of academic dishonesty have traditionally been divided into individual determinants, which are related to the personal characteristics of students, and contextual determinants, which reflect the specific features of the learning environment.

Originally, researchers of academic misconduct mostly focused on the first type of factors. Today, however, the most popular approaches integrate both types of determinants in theoretic models. For example, this strategy is supported by researchers who stick to Ajzen's theory of planned behavior and those who interpret academic dishonesty as the result of rationally calculating costs and benefits, adjusting Becker's conception to academic dishonesty research [Shmeleva, 2015].

The latter approach makes it possible to regard the various personal characteristics of students and specific features of the learning environment as parameters that can increase or decrease the costs of dishonest behavior. This echoes more the unique data of the Monitoring of Education Markets and Organizations survey, which contain no information about student attitudes towards academic dishonesty, whereas the planned behavior theory relies heavily upon that.

Studies that borrow logic from the economic approach reveal that the use of dishonest practices is reduced greatly if expected benefits decrease, the probability of reporting increases, or the penalties for revealed cases of dishonesty become more severe (e. g. [McCabe, Trevino 1997; McCabe, Butterfield, Trevino 2006]).

Using the results of mostly foreign studies and the overview from Shmeleva [2015], we identified a number of individual characteristics of students that may increase the expected benefits from academic misconduct and thus increase the probability of its occurring.

1.1. Individual factors

Low level of engagement in learning. Assessing the effects of academic performance on the probability of using dishonest practices in learning is one of the traditional methods in this field, however the results obtained by different researchers are quite controversial. The reason for this may be a disregard for the motives behind academic misconduct: while low-performing students may resort to cheating to compensate for gaps in their knowledge, their high-performing peers might do it in order to maintain the level achieved [Kuntz, Butler, 2014].

H1

We assume that the factor of engagement in learning (with performance as one of its possible indicators) is a better predictor of academic misconduct. We also suggest that the intensiveness of preparing for most classes, which shows attitude towards learning better than performance as such, largely affects the process of deciding whether to use dishonest practices. So, the hypothesis is formulated as follows: the greater the intensity with which students prepare for classes and the better the performance and attendance they show, the less likely they will resort to plagiarism or cheating.

Low level of engagement in research. We hypothesize that engagement in research may predict academic dishonesty in a university. Indeed, once students become part of the academic community, they start sharing its values and ethical norms, which can possibly keep them from using dishonest practices in the learning process.

H2

No further education plans. Students planning to continue their education—to make long-term investments in their human capital—are more interested in accumulating that human capital to get a fair payoff afterwards. Academic dishonesty, however, inhibits the accumulation of human capital, being a means of avoiding the activities required to improve knowledge, skills, and competencies.

H3

We assume that students who are going to obtain a research degree in Russia or abroad someday will be less likely use dishonest practices that decrease the effectiveness of investments in human capital.

No confidence in working in one's field of study in the future. Here we assume that students who have no confidence that they will ever work in their field of study are most likely unsatisfied with the field of study they have chosen or with the quality of teaching. In this case, students will likely want to minimize their learning efforts by engaging in dishonest practices.

H4

1.2. Contextual factors

The data obtained by the Monitoring of Education Markets and Organizations survey allows us to not only measure the influence of individual student characteristics on the probability of using dishonest learning practices, but also to test some hypotheses on the importance of contextual factors, such as professor behavior or peer academic misconduct.

Faculty plays a crucial part in shaping a learning environment, whether favorable for academic dishonesty or not, by setting the "rules of the game" and the required degree of compliance.

For instance, the attitude of professors toward academic dishonesty—i. e. whether they prefer mild or more severe forms of punishment—develops student ideas of appropriate and inappropriate learning practices. A student who perceives the threat of potential penalties to be moderate will find it easier to cheat due to the low associated costs, which has been proven empirically [McCabe, Trevino, 1997; McCabe, Butterfield, Trevino, 2006].

Professors engaged in research activities will probably react more negatively to academic misconduct as a violation of academic ethics, which means that they will be less tolerant of cheating.

H5   *The higher the proportion of professors demonstrating intolerance to plagiarism and cheating, the lower the incidence of these practices among students.*

It is not only the perceived threat of penalties that matters in assessing the costs of academic dishonesty; the estimated odds of getting caught are also taken into account. For example, if a professor warns students that their written papers will be checked for plagiarism but they never really are (which students may reveal through discussing their coursework assignment techniques), students may decide that complying to the rules is useless and excessively painstaking [McCabe, Trevino, Butterfield, 2001]. Additionally, students witnessing the unpunished academic misconduct of their peers may lose some of their motivation for learning and start regarding dishonest behavior as an efficient means of overcoming challenges in education.

Therefore, we assume that the resolution of the ethical dilemma of whether to use dishonest practices is affected by the perceived odds of being caught, which are higher in universities addressing academic dishonesty, for example by checking student papers for plagiarism.

H6   *Students in universities addressing academic dishonesty cheat less often than students in universities with no such practice.*

It is not only faculty and administrators who shape a learning environment. Students also contribute by maintaining a system of informal norms that regulate their learning behavior. Such norms, in particular, may legitimize academic dishonesty as a means of achieving educa-

tion goals. Donald L. McCabe, one of the most well known experts in academic dishonesty, has often found peer behavior to be the most powerful factor of academic integrity or dishonesty [McCabe, Butterfield, Trevino, 2006]. Accordingly, a student who thinks that plagiarism and cheating are widespread among their peers is more likely to engage in academic misconduct than a student perceiving the level of integrity in the learning environment as high. Foreign researchers often refer to this mechanism of getting involved in dishonest behavior by developing a tolerant attitude to it as the coordination effect.

However, students often overestimate the frequency of using dishonest practices by their peers, while professor estimates are usually lower and more accurate [Hard, Conway, Moran 2006]. Therefore, we will use the faculty's opinion on the incidence of plagiarism and cheating among students in assessing the coordination effect.

The higher the incidence of academic dishonesty as assessed by professors (in other words, the higher the proportion of cheaters), the higher the probability of using dishonest practices by students. H7

2. Empirical basis of research

The research was based on the 2014/2015 Monitoring of Education Markets and Organizations data collected from 99 higher education institutions of various types in all federal districts. The sample included 2,978 full-time Specialist and Bachelor students and 1,507 professors surveyed by the Monitoring.

The data obtained by the Monitoring was used to build and assess two binary-response logistic regression models for each of the dishonest practices of plagiarism and cheating. In this study, plagiarism is understood as the wrongful appropriation of another author's language or ideas in one's own original work, and cheating is understood as obtaining any kind of assistance in tests and examinations without due acknowledgement.

Predictors included three groups of variables. The first one covered variables associated with individual student characteristics obtained in student surveys. Contextual factors based on faculty surveys and added to the student database formed the second group. The third group consisted of control variables that included both the personal characteristics of students (sex, major, form of financing, family capital, employment status), and contextual factors describing the institutional features of universities (type of university, type of ownership, location, and main or satellite campus).

3. Measuring the main variables

We used two dependent variables: "Experience of plagiarism" and "Experience of cheating".

Experience of plagiarism. This variable was obtained by uniting three indicators that show whether a student has ever: 1) used frag-

3.1. Dependent variables

ments of someone else's articles or books without any reference; 2) submitted works rewording another author's ideas without any reference; or, 3) bought pre-written papers. Twenty-nine percent of students in the sample have used at least one of these plagiarism methods.

Experience of cheating. This variable was obtained by uniting three indicators that show whether a student has ever: 1) copied from other students in tests or examinations; 2) used cheat sheets in examinations; 3) used notes or materials stored on their mobile phone in examinations. The same proportion of respondents (29%) reported to have had some cheating background.

3.2. Measuring individual student characteristics

Engagement in learning. The regression model used three indicators of engagement in learning: last year's performance, the intensiveness of preparing for classes (based on the answers to the question of which materials students usually use to prepare for classes), and attendance.

Engagement in research. Two indicators of engagement in research activities were used for analysis: research activity (in current and previous academic years) and research productivity (conference background, participation in research paper competitions, publications).

Education and career plans. In accordance with the suggested hypotheses, the predictors include the intention of students to: (a) get another Bachelor's or Specialist degree; (b) complete a Master's degree in Russia; (c) complete a PhD in Russia; or, (d) study abroad.

We also constructed a variable of "confidence in working in one's field of study in the future", based on the question: "Do you think that you will work in your current field of study?" A value of "1" was assigned to respondents choosing the answer "Yes, I am pretty sure that I will."

A variable describing student commitment to education quality was developed in a two-step cluster analysis of answers on the reasons behind choosing a specific university and major. Two clusters of students were identified, depending on whether they made their choice being guided mostly by education quality (cluster 1) or accessibility (cluster 2) (Table 1).

3.3. Constructing learning environment indicators

Learning-environment indicators were constructed based on a faculty survey. The following variables were developed for each of them.

Engagement in research. The indicators used in this study include the overall number of research activities and research productivity (number of publications of various types and number of conference or seminar reports).

Assessment of the incidence of academic dishonesty. The Monitoring of Education Markets and Organizations survey asked professors a series of questions about the incidence of various dishonest practices among students of the university they teach in. Two index-

Table 1. **Proportion of students selecting a specific university and criterion for major choice in clusters** (%)**, corresponding to cluster centers**

Reason for choosing university (department, major)	Cluster 1	Cluster 2	Total sample percentage
It is the only option available where I live	6.2	93.8	1.1
It is close to my home	26.3	73.7	11.1
Easy to get admitted	3.6	96.4	10.1
My relatives, acquaintances, or their children studied (study) there	13.7	86.3	14.5
Highly qualified faculty	78.8	21.2	27.9
Free education / Affordable tuition fees / Good student loan terms	31.7	68.3	13.7
High reputation, prestige	81.1	18.9	29.2
Great resources and technical facilities	84.1	15.9	9.7
Nice student population	83.0	17.0	10.2
Easy to study	13.0	87.0	7.8
A relative or acquaintance of mine works there	28.2	71.8	2.4
I failed to enter another university	0.8	99.2	8.4
To get a high-paying job	91.1	8.9	18.5
Easy to find a job as a graduate	76.5	23.5	10.0
I had an edge in the entrance examination	20.0	80.0	6.2
They provide a great education in my major of preference	72.5	27.5	36.3
I was advised by parents	24.5	75.5	13.8
Observations	1601	1177	2978
Proportion in the sample	53.8	46.2	100

es, one for plagiarism and one for cheating, were created based on those questions.

*Professor attitude towards plagiarism and cheating among students. I*ndicators of plagiarism intolerance included the following answers to the question: "What will you do if you come across blatant plagiarism in a student paper?"

- "I will recommend that this student be expelled."
- "I will lower the final grade by a certain number of points."
- "I will give an unsatisfactory mark without having them rewrite the paper."

A new variable—"intolerance to plagiarism"—was introduced based on this question, with a value of "1" assigned to respondents who chose one of the three options mentioned above.

The same algorithm was used to construct the variable showing professor intolerance to cheating.

Perception of academic dishonesty prevention practices enforced by the university. The Monitoring of Education Markets and Organizations survey asked professors to evaluate the obligatoЯy check of student work (theses, term papers, reports, etc.) for plagiarism in their university. This question served as the basis for three dichotomous variables reflecting the incidence of anti-cheating and anti-plagiarism practices at a university.

Principal component analysis (VARIMAX rotation) was used to create integral variables describing the learning environment in terms of tolerance to academic misconduct on the basis of the variables generated above. As those variables that correlated little with the resulting factors ("intolerance to plagiarism" and "no plagiarism prevention policies") were removed from the initial model, we received a factor model consisting of four factors that explain over 70% of total dispersion. Factor loadings are specified in Table 2.

Factor 1 reflects professor perception of academic dishonesty prevention practices enforced by the university, which appears from the positive factor loading of variable "Plagiarism-checking policies enforced" and a negative factor loading of variable "No plagiarism-checking policies enforced, but professors perform checks at their own discretion." Factor loading analysis reveals that Factor 2 correlates with the variables describing the engagement of professors in research. Factor 3 is associated with variables showing subjective assessment of plagiarism and cheating incidence by professors. Factor 4, which may be referred to as "Intolerance to cheating", correlates positively with the variable of the same name and negatively with the variable "Tolerance to cheating".

Having aggregated the significant factors, we generated same-name variables (as mean factor values) for each university, which were later added to the student survey database and used as predictors in the two regression models.

4. Plagiarism experience determinants

In the model for the plagiarism experience dependent variable, predictors included the personal characteristics of students, contextual variables (learning environment indicators calculated with factor analysis), and control variables.

The model did not embrace all the dummy variables indicating the major and type of university, but only those whose correlation with the resulting variable had been confirmed by a chi-squared test. Thus, the model included variables describing majors in social sciences, en-

Table 2. **Factor loading matrix after rotation**

Variable	Factor 1	Factor 2	Factor 3	Factor 4
Total number of publications	−0.03	0.786	−0.014	−0.033
Total number of conference and seminar reports	0.041	0.785	−0.081	−0.001
Total number of research activities	0.059	0.682	0.132	0.055
Plagiarism incidence index	0.02	0.009	0.865	0.021
Cheating incidence index	−0.027	0.028	0.869	0.007
Tolerance to cheating	0.005	−0.085	0.086	−0.859
Intolerance to cheating	−0.01	−0.063	0.116	0.851
Plagiarism-checking policies enforced	0.929	0.108	−0.023	−0.016
No plagiarism-checking policies enforced, but professors perform checks at their own discretion	−0.934	0.037	−0.015	0.000
KMO measure of sampling adequacy	0,52			
Bartlett's sphericity test	$\chi^2 = 2597,176$; df = 36; sig < 0,001			

gineering, culture and arts, as well as economic, humanities, arts, teacher training, agricultural and classical universities.

Binary logistic regression assessment results are provided in Table A1 of the Appendix.

4.1. Individual control characteristics

Regression analysis shows that second- and fourth-year students are more likely to commit plagiarism than freshmen. The probability of engaging in this dishonest practice is also higher among students who work part-time.

The existing relationship between plagiarism and majors in social sciences, engineering, culture, and arts had not been discovered when other individual and contextual characteristics were controlled for.

Government-sponsored students are less likely to engage in plagiarism than those who pay from their own pockets. This is probably because state-funded students normally demonstrate better skills and/or performance, since they had higher USE scores in admissions.

Individual control variables included family capital characteristics: single-parent family, mother's higher education, and a student's assessment of his or her family's wellbeing. Only the latter turned out to be significant: children from more advantaged families commit plagiarism less often.

4.2. Control contextual characteristics

Students of economic, humanities, teacher training, and classical universities are much more likely to resort to plagiarism in their works than students of other types of universities (e. g. transportation, engineering, or medical). Meanwhile, studying in an agricultural institution seems to reduce the odds of using dishonest practices.

A university's size and location, its status (main/satellite campus), and form of ownership do not have any strong effect on the incidence of plagiarism.

4.3. Individual characteristics

Engagement in learning. The hypothesis that engagement in learning affects the probability of committing plagiarism has been partially confirmed. Medium and high levels of intensity of preparing for classes greatly reduces the odds of wrongful appropriation, as compared to no preparation at all for most of the classes.

Students who were guided by education quality when selecting a university are 23% less likely to engage in plagiarism than those interested first and foremost in education accessibility. Attendance and academic performance have no effects on using plagiarism in written papers.

Engagement in research. Contrary to what we expected, the regression analysis shows that this aspect of learning experience exerts no significant influence on the plagiarism record.

Education and career plans. We assumed that intention to complete a PhD in Russia or to get another degree abroad should reduce the odds of engaging in plagiarism, but the hypothesis was not supported by this study. Meanwhile, intent to earn another Bachelor's or Specialist degree turned out to be a significant predictor of plagiarism: students with such intent tend to commit plagiarism 1.2 times more often than their peers without any further education plans. It may be that those students planning to get another degree are not satisfied with the level of their current education. In this case, they may have developed particular disrespect for academic rules. Additionally, we found out that students who are convinced their future job will be related to their field of study are 20% less likely to use plagiarism in their works, which is consistent with our hypothesis.

4.4. Contextual characteristics

Learning-environment indicators. Out of the four learning environment indicators we constructed above as a result of factor analysis, three appear to be significant predictors of plagiarism. The proportion of professors that are intolerant to plagiarism proves to be the most powerful one: its increase by one point reduces the odds of plagiarism by 44%. A slightly lower but strong influence is exerted by the incidence of academic dishonesty as assessed by professors (increases the odds of using dishonest practices by 35%), which confirms the coordination effect hypothesis. The engagement of professors in research also seems to greatly affect student decisions on whether to use plagiarism. Wrongful appropriation is less widespread among stu-

dents of universities where professors show more engagement in research. However, we found the availability of anti-plagiarism policy in a university to be an insignificant predictor of student plagiarism. Apparently, it is not so much official policy—such as obligatory checks for plagiarism—that affects how student perceive the threat of possible penalties, but rather the personal negative attitude of professors to plagiarism.

5. Cheating experience determinants

A similar model was constructed for cheating, with the only distinction in the control variables describing the major and the type of university. This model only used the dummy variables whose correlation with the resulting variable had been confirmed by a chi-squared test. These included the variables associated with majors in life sciences, engineering, healthcare, culture and arts, as well as with humanities, engineering, arts, agricultural, and transportation universities. Regression model results are provided in Table A2 of the Appendix.

5.1. Individual control characteristics

Students in the second to fifth years of study are twice as likely to cheat as freshmen. Students in engineering and life sciences also tend to cheat more often. Other individual control characteristics we analyzed seem to have no significant effect on the predisposition to cheating.

5.2. Contextual control characteristics

All other parameters held constant, cheating is more widespread in state universities (as compared to private) and on main campuses (as opposed to satellites). Presumably, state universities and main campuses impose higher requirements and quality standards, which make students feel under pressure and prompt them to bypass the rules.

Besides this, cheating is three times more popular in humanities universities than in economic, medical, teacher training, or classical institutions. Studying in agricultural and transport universities produces a contrary effect. As with plagiarism, university size and location have no significant influence on the incidence of cheating.

5.3. Individual characteristics

Engagement in learning. All indicators of engagement in learning except academic performance are significant and affect the honesty of student behavior in this model, which is consistent with the hypotheses proposed above. For instance, students who devote more time and effort to preparing for classes are less likely to cheat than those who do not prepare for classes. Attendance rate is also a good predictor of cheating: students attending more than 75% of all classes will be less likely think of cheating than those attending only half of the classes or less.

Student priorities in choosing a university affect the probability of cheating, too. Students who were interested in education quali-

ty cheat less often than students who paid attention to the accessibility of education first and foremost. However, this effect is not that strong.

Engagement in research. As with plagiarism, the engagement of students in research activities has no correlation with cheating.

Education and career plans. Just as we suggested, students planning to complete a PhD cheat less often. The pattern is intuitively obvious: students preparing for academic and research careers—i. e. those who are committed to accumulating knowledge and skills and to developing a relevant reputation—find little or no interest in cheating as a destructive practice.

Like plagiarism, cheating is less popular among students who are convinced they will work in their field of study.

5.4. Contextual characteristics

Learning environment indicators. Again, three of the four learning environment indicators constructed as a result of factor analysis turned out to be significant. The outlying indicator is again a professor's perception of the academic dishonesty prevention practices being enforced by the university. Among the significant predictors, the proportion of professors engaged in research produces the strongest effect: increasing this indicator by one point reduces the odds of cheating by 38%. A somewhat lower influence is exerted by the proportion of professors intolerant to cheating, which correlates negatively with the odds of cheating. The coordination effect hypothesis was confirmed: the higher the proportion of cheaters in a university, the higher the probability of using dishonest practices.

6. Conclusion

This study was aimed at identifying the determinants of using plagiarism and cheating by students, allowing for the possible effects of their personal characteristics and learning-environment parameters.

What is the role of individual student characteristics?

The research revealed that *engagement in learning* greatly affects the likeliness of cheating. The intensity of preparing for classes is the best predictor of plagiarism, displaying the learning effort of students. *Performance*, as we suggested, is not a significant predictor of academic dishonesty: the difference between "formally" low and high performers only mattered for plagiarism.

A relatively low though significant negative correlation was found between the probability of using dishonest practices and *the education quality priority* in choosing a university and major, which is an indirect indicator of intrinsic motivation for learning.

Cheating is determined less by *engagement in learning* than plagiarism, which is probably due to its higher incidence and acceptability by students. In other words, plagiarism is mostly committed by weaker students, while cheating is also practiced, although less, by high performers.

The rest of the personal characteristics investigated in this study are relatively less powerful. For example, *intent to get another Bachelor's or Specialist degree* increases the odds of using plagiarism. In all likelihood, such students are not satisfied with their current major and thus become indifferent to the learning process and negligent to academic integrity. Cheating, however, is not affected by this intention; instead, it correlates with *further education plans*, which imply expecting a relevant return on investments in one's human capital.

Unlike education plans, *career plans* affect the probability of both cheating and plagiarism, which are practiced less often by students who are convinced they will work in their field of study. Having no such confidence may be explained by the perceived imbalance between the quality and content of current education, on the one hand, and the requirements of prospective employers, on the other hand. Therefore, academic dishonesty appears to be a sober response to the gap between what the university provides and what the market needs. We can also say that plagiarism and cheating correlate with other factors, which are extrinsic to the university and characterize overall social conditions. The prospective employment situation is a good example. Being uncertain about getting a job in one's field of study under existing and anticipated labor market conditions, students may grow ever more prepared for and tolerant to academic dishonesty. We find it important to clarify the correlation between labor market characteristics, such as demand for a specific major, student perception of employment prospects, and student attitudes to their profession, on the one hand, and the probability of engaging in academic misconduct, on the other hand. The framework for analysis of both university and student characteristics could also be extended.

We expected the *engagement of students in research* to be able to affect the odds of using dishonest practices, as this suggests compliance with academic integrity norms. However, the effects turned out to be insignificant. This could perhaps be explained by the relatively low requirements for student research papers and the also relatively low academic integrity standards applied by universities.

What is the role of a university and its faculty in particular?

Reasoning from the results of foreign empirical studies, we assume that certain university characteristics may serve as constraining factors for academic dishonesty. First, it is about detection policies adopted by universities and supported by their faculties. This characteristic was assessed based on the question to professors on the incidence of plagiarism checks in their universities.

Second, it is about university characteristics affecting student perceptions of the threat of penalties for plagiarism. Students tend to look first thing to the prevailing attitude of professors to academic misconduct, which manifests itself in more or less severe penalties for plagiarism and cheating. Another indicator of learning-environment "severity" was the engagement of professors in research, which presumably

accounts for a higher commitment of students to academic integrity norms, as compared to having professors who are not engaged in any research activities.

Third, professor assessments of the incidence of academic dishonesty was also a significant predictor. The higher the estimates—which reflect learning environment integrity—the higher the probability of students using dishonest practices as a result of the coordination effect.

The research revealed that the learning-environment indicators we had constructed had a great impact on both plagiarism and cheating.

An exception to this is *anti-plagiarism practices enforced by a university* (plagiarism checks), which describes the probability of "getting caught". Assessment of this probability affects the decision to engage in academic dishonesty, which has been proved empirically [McCabe, Trevino, Butterfield 2001]. On the one hand, zero correlation between academic misconduct and this indicator contradicts our hypothesis that students assessing the risk of getting caught as high will be less likely to resort to plagiarism or cheating due to increased potential costs. On the other hand, despite plagiarism detection practices enforced by universities, cheaters usually receive mild or no punishment at all: only 39% and 23% of professors support applying severe penalties for cheating and plagiarism, respectively. Therefore, the odds of being severely punished are minimal even in universities that address plagiarism actively. This means that the estimated costs of engaging in plagiarism or cheating will only increase along with the probability of detection. When severe penalties (such as reprimand, reporting to the Dean, or expulsion) are hardly ever applicable, the consequences of academic dishonesty turn out to be pretty safe for students who feel ashamed and guilty in the worst scenario. Even then, however, this feeling will be rather weak, given the overall acceptance of academic misconduct by Russians, especially students [Roshchina, 2013].

Research outcomes prove the hypothesis that the probability of using plagiarism and cheating is higher in a learning environment characterized by a high incidence of academic dishonesty. This characteristic more significantly affects cheating than plagiarism, perhaps because of the "collective" nature of cheating (when students copy from one another) and the purely individual nature of plagiarism. The coordination effect is also proved by the fact that more senior students are more likely to show dishonest learning behavior than freshmen. In other words, students see their peers avoid punishment and decide to "join the movement" afterwards [Josien, Broderick, 2013. P. 101].

In our view, the research results speak for the possibility of keeping academic dishonesty at bay. First, professors should be encouraged to apply severe penalties. Second, such penalties may be legitimized in the eyes of students if the punishment and enforcement procedure is described in an official document (honor codes, for instance, are widely popular in American universities). Third, it is vital to

bring to the attention of students that all works will be checked for plagiarism, that cheating is totally unacceptable, and that penalties will follow almost certainly.

References

1. Brandão M., Teixeira A. C. (2005) Crime without Punishment: An Update Review of the Determinants of Cheating Among University Students. Research. *Work in Progress*, no 191, pp. 131.
2. Golunov S. (2010) Studencheskiy plagiat kak vyzov sisteme vysshego obrazovaniya v Rossii i za rubezhom [Plagiarism in Students as Challenge to Higher Education System in Russia and Abroad]. *Voprosy obrazovaniya/ Educational Studies. Moscow*, no 3, pp. 243–257.
3. Hard S. F., Conway J. M., Moran A. C. (2006) Faculty and College Student Beliefs about the Frequency of Student Academic Misconduct. *Journal of Higher Education*, vol. 77, no 6, pp. 1058–1080.
4. Kuntz J. R., Butler C. (2014) Exploring Individual and Contextual Antecedents of Attitudes Toward the Acceptability of Cheating and Plagiarism. *Ethics & Behavior,* vol. 24, no 6, pp. 478494.
5. Latova N., Latov Y. (2007) Obman v uchebnom protsesse [Academic Dishonesty among Students]. *Obshchestvennye nauki i sovremennost*, no 1, pp. 31–46.
6. Magnus J. et al. (2002) Tolerance of Cheating: An Analysis across Countries. *Journal of Economic Education*, vol. 33, no 2, pp. 125135.
7. McCabe D.L., Butterfield K. D., Trevino L. K. (2006) Academic Dishonesty in Graduate Business Programs: Prevalence, Causes, and Proposed Action. *Academy of Management Learning & Education*, vol. 5, no 3, pp. 294305.
8. McCabe D.L., Trevino L. K. (1997) Individual and Contextual Influences on Academic Dishonesty: A Multicampus Investigation. *Research in Higher Education*, vol. 38, no 3, pp. 379396.
9. McCabe D.L., Trevino L. K., Butterfield K. D. (2001) Cheating in Academic Institutions: A Decade of Research. *Ethics and Behavior*, vol. 11, no 3, pp. 219–232.
10. Michaels J. W., Miethe T. D. (1989) Applying Theories of Deviance to Academic Cheating. *Social Science Quarterly*, vol. 70, no 4, pp. 870885.
11. Nonis S., Swift C. O. (2001) An Examination of the Relationship between Academic Dishonesty and Workplace Dishonesty: A Multicampus Investigation. *Journal of Education for Business*, vol. 77, no 2, pp. 6977.
12. NRU HSE (2014) *Monitoring studencheskikh kharakteristik i traektoriy. 2014. Otchet po proektu* [Monitoring of Student Characteristics and Trajectories. 2014. Project Report]. Available at: http://www.hse.ru/data /2014/10/21/1098991659/%D0%9E%D1%82%D1%87%D0%B5%D1%82%20 %D0%BF%D0%BE%20%D0%BF%D1%80%D0%BE%D0%B5%D0%BA%D1%82%D1%83%20%D0%9C%D0%A1%D0%A5%D0%A2.pdf (accessed 10 February 2016). Radayev V., Chirikov I. (2006) Otnoshenie studentov i prepodavateley k nakazaniyam za plagiat i spisyvanie [Attitude of Students and Professors towards Punishment for Plagiarism and Cheating]. *Universitetskoe upravlenie*, no 4, pp. 77–82
13. Roshchina Y. (2013) *Obrazovatelnye strategii i praktiki studentov professionalnykh uchebnykh zavedeniy v 2006–2012 gg. Monitoring ekonomiki obrazovaniya*, iss. 8 (71) [Educational Strategies and Practices of Students of Professional Education Institutions in 2006–2012. Monitoring of education markets and organizations, iss. 8 (71)]. Moscow: NRU HSE. Available at: http://www.hse.ru/data/2014/04/10/1320230787/ИБ%20МЭО%20№ 8%20 (71)%202013.pdf (accessed 10 February 2016).

14. Sivak Y. (2006) *Prestuplenie v auditorii. Determinanty nechestnogo po-vedeniya studentov (plagiata i spisyvaniya)* [A Crime in the Class. Determinants of Academic Misconduct (Plagiarism and Cheating)]. Working paper WP10/2006/06, Moscow: HSE. Available at: http://lia.hse.ru/data/076/590/1239/WP10_2006_06.pdf (accessed 10 February 2016).
15. Shmeleva E. (2015) Akademicheskoe moshennichestvo v sovremennykh universitetakh: obzor teoreticheskikh podkhodov i rezultatov empirich-eskikh issledovaniy [Academic Dishonesty in Modern Universities: A Review of Theoretical Approaches and Empirical Findings]. *Ekonomicheskaya sotsiologiya*, vol. 16, no 2, pp. 55–79.
16. Sims R. L. (1993) The Relationship between Academic Dishonesty and Unethical Business Practices. *Journal of Education for Business*, vol. 68, no 4, pp. 207–211.

Table A1. **Assessment of the binary logistic regression model with a dependent variable of "Experience of any form of plagiarism"**   **Appendix**

Variable	B	Value	Exp (B)
Male gender	0.030	0.745	1.031
Employed part-time	0.193**	0.038	1.213
Government-sponsored	−0.240**	0.025	0.787
Fulfilling the minimal requirements to prepare for classes (base: no preparation for most classes)	−0.380*	0.064	0.684
Medium intensity in preparing for classes	−0.727***	0.001	0.483
High intensity in preparing for classes	−0.905***	0.000	0.404
Engagement in (any form of) research in current and previous academic years	0.222	0.114	1.249
Research productivity	−0.276*	0.072	0.759
High level of confidence in working in one's field of study in the future	−0.218**	0.015	0.804
Planning to get another Bachelor's or Specialist degree	0.190**	0.045	1.209
Planning to earn a Master's degree in Russia	0.098	0.333	1.103
Planning to earn a PhD in Russia	−0.182	0.202	0.834
Planning to study abroad	−0.007	0.959	0.993
Attendance from 50% to 75%	0.096	0.627	1.101
Attendance over 75%	0.054	0.774	1.055
1st year (base)		0.001	
2nd year	0.450***	0.001	1.569
3rd year	0.186	0.194	1.204
4th year	0.497***	0.001	1.644
5th year	0.070	0.702	1.072
Mostly good grades (B's) (base: satisfactory/unsatisfactory grades)	−0.081	0.598	0.922
Only good and excellent grades (B's and A's)	−0.062	0.691	0.940
Only excellent grades (A's)	−0.367*	0.060	0.693
Major: Social Sciences[a]	0.058	0.604	1.059
Major: Engineering[a]	−0.152	0.281	0.859
Major: Culture and Arts[a]	−0.440*	0.079	0.644
Single-parent family	−0.167	0.110	0.846
Mother has a higher education	0.139	0.118	1.149
High-income family	−0.176**	0.049	0.839

Variable	*B*	Value	Exp (*B*)
Economic university[b]	0.345**	0.026	1.412
Humanities university[b]	0.589**	0.042	1.802
Classical university[b]	0.351**	0.015	1.420
Arts university[b]	0.023	0.934	1.023
Teacher-training university[b]	0.545***	0.004	1.725
Agricultural university[b]	−0.410**	0.033	0.664
Education quality is a priority in choosing university and major	−0.268***	0.003	0.765
State university	0.269	0.117	1.309
Main campus	−0.042	0.779	0.959
999 students or less in the student body (base)		0.190	
1,000–4,999 students in the student body	−0.188	0.247	0.829
Over 5,000 in the student body	−0.013	0.943	0.987
Moscow university	−0.039	0.716	0.962
University enforces academic dishonesty prevention practices	−0.027	0.764	0.973
Engagement of professors in research	−0.254**	0.018	0.775
Incidence of academic dishonesty as assessed by professors	0.300***	0.001	1.350
Intolerance to cheating	−0.577***	0.000	0.561
Constant	−0.543	0.162	0.581
Number of observations	2931		
Nagelkerke's *R squared*	0.104		
-2Log-likelihood	3315.8		
Hosmer-Lemeshow goodness-of-fit test	$\chi^2 = 6.576$; $df = 8$; $sig = 0.583$		
Percentage of answers identified correctly prior to introducing predictors	70.9		
Percentage of answers identified correctly upon introducing predictors	72.5		

Notes:
*** statistical significance p=0.001;
 ** statistical significance p=0.01;
  * statistical significance p=0.05;
  [a] base: majors in life sciences, medicine, and humanities;
  [b] base: transportation, engineering, and medical universities.

Table A2. **Assessment of the binary logistic regression model with a dependent variableof "Experience with cheating in tests and exams"**

Variable	B	Value	Exp (B)
Male gender	−0.083	0.386	0.921
Employed part-time	0.091	0.333	1.096
Government-sponsored	−0.133	0.227	0.875
Fulfilling the minimal requirements to prepare for classes (base: no preparation for most classes)	−0.084	0.69	0.92
Medium intensity in preparing for classes	−0.37*	0.091	0.691
High intensity in preparing for classes	−0.636**	0.01	0.529
Engagement in (any form of) research in current and previous academic years	−0.263*	0.084	0.769
Research productivity	0.292*	0.076	1.339
High level of confidence in working in one's field of study in the future	−0.22**	0.017	0.802
Planning to get another Bachelor's or Specialist degree	−0.106	0.276	0.899
Planning to earn a Master's degree in Russia	0.098	0.343	1.103
Planning to earn a PhD in Russia	−0.394***	0.008	0.675
Planning to study abroad	0.085	0.524	1.089
Attendance from 50% to 75%	−0.219	0.258	0.804
Attendance over 75%	−0.546***	0.003	0.579
1st year (base)		0.000	
2nd year	0.753***	0.000	2.124
3rd year	0.631***	0.000	1.879
4th year	0.955***	0.000	2.6
5th year	0.726***	0.000	2.068
Mostly good grades (B's) (base: satisfactory/unsatisfactory grades)	0.016	0.919	1.016
Only good and excellent grades (B's and A's)	−0.037	0.814	0.963
Only excellent grades (A's)	−0.083	0.672	0.921
Major: Life Sciences[a]	0.287**	0.044	1.332
Major: Engineering[a]	0.325**	0.028	1.385
Major: Medicine[a]	0.061	0.767	1.063
Major: Culture and Arts[a]	−0.419*	0.095	0.657
Single-parent family	0.096	0.357	1.1
Mother has a higher education	0.103	0.256	1.108

Variable	*B*	Value	Exp (*B*)
High-income family	0.047	0.604	1.048
Education quality priority in choosing university and major	−0.264***	0.004	0.768
State university	0.616***	0.000	1.852
Main campus	0.444***	0.004	1.559
Moscow university	0.177*	0.099	1.193
Humanities university[b]	1.151***	0.000	3.162
Engineering university[b]	0.223	0.126	1.25
Arts university[b]	−0.207	0.443	0.813
Agricultural university[b]	−0.894***	0.000	0.409
Transportation university[b]	−0.637***	0.004	0.529
999 students or less in the student body (base)		0.6	
1,000–4,999 students in the student body	0.001	0.994	1.001
Over 5,000 in the student body	−0.11	0.565	0.896
University enforces academic dishonesty prevention practices	0.137	0.131	1.146
Engagement of professors in research	−0.486***	0.000	0.615
Incidence of academic dishonesty as assessed by professors	0.232***	0.009	1.261
Intolerance to cheating	−0.271**	0.024	0.763
Constant	−1.463***	0.000	0.232
Number of observations		2931	
Nagelkerke's *R squared*		0.145	
-2Log-likelihood		3230.69	
Hosmer-Lemeshow goodness-of-fit test		$\chi^2 = 3.829$; $df = 8$; $sig = 0.872$	
Percentage of answers identified correctly prior to introducing predictors		70.7	
Percentage of answers identified correctly upon introducing predictors		72.5	

Notes:
*** statistical significance p=0.001;
 ** statistical significance p=0.01;
  * statistical significance p=0.05;
  [a] base: majors in social цsciences and humanities;
  [b] base: economic, medical, teacher training and classical universities.