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The Relationship between Student Engagement and  
Learning Outcomes of Students at Russian Universities

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### **List of Publications**

1. Shcheglova I., Koreshnikova Y., Parshina O. (2019). The Role of Engagement in the Development of Critical Thinking in Undergraduates. *Educational studies*, 1(1), 264-289 (in Russian).
2. Shcheglova I. (2019). Can Student Engagement in Extracurricular Activities Facilitate the Development of Their Soft Skills? *Monitoring of Public Opinion: Economic and Social Changes Journal*, 6, 111-121.
3. Shcheglova I., Gorbunova E., Chirikov I. (2020). The Role of the First-Year Experience in Student Attrition. *Quality in Higher Education*, 26(3), 307-322.
4. Shcheglova I. (2018). A Cross-Cultural Comparison of the Academic Engagement of Students. *University Management: Practice and Analysis*, 22(3), 155-164 (in Russian).

### **Selected conferences, where research results were presented**

1. XIX April Conference. April 10-13, 2018. Moscow, Russia. Title: “Student Engagement in the Academic, Research and Extracurricular Activities as a Factor of the Development of Critical Thinking in Undergraduates”
2. CHER 31st Annual Conference: Differentiation and Integration in Higher Education: Patterns and Dynamics. 30 August - 1 September, 2018. Moscow, Russia. Title: “Relationships between Student Engagement in Extracurricular Activities and the Development of Learning Outcomes”
3. Association for Studies of Higher Education (ASHE) Conference. November 15-17, 2018. Tampa, FL, USA. Title: “Do Effects of Student Engagement on the Development of Generic Skills Differ across Nations? The Comparison of Individualistic and Collectivistic Countries”
4. Middle-Term Conference Culture and Education: Social Transformations and Multicultural Communication RC04 Sociology of Education International Sociological Association (ISA). July 24-26, 2019. Moscow, Russia. Title: “Departure Puzzle of Russian Students: Student Attrition in Russia”

## **Background**

One of the most important tasks for both higher education researchers and university administrators is to understand the factors of students' learning outcomes (Pascarella, Terenzini, 2005; Podolsky, Pogozhina, 2016; Kuzminov et al., 2019). Which design of the learning environment fosters students' learning? What kind of interventions can increase the likelihood of completing an educational program on time? How does student activity in and outside of class help to form academic skills, as well as communication skills, teamwork, critical thinking? Although there are many discussions on this topic, there is not yet a consensus on how students' educational outcomes can be improved.

Starting from the 1990s, in the United States and several other countries empirical evidence began to emerge and accumulate which postulate that educational outcomes such as skills development and degree completion are associated with student engagement (Astin, 1984; Kuh, 2008, 2009; Krause, Coates, 2008). According to Astin, engagement includes both physical and psychological energy invested by students to obtain educational experience (1984). Academic experience is formed in the process of active participation of the student in classroom (participation in discussion, joint projects with other students) and extracurricular activities implemented on the basis of the university without receiving a grade or a credit (for example, student organizations/clubs, volunteer and sports events). The degree of student engagement is measured through the regular participation of students in educational activities in the class and outside and can be expressed in the number of hours spent on certain activities.

Although the results of international studies indicate a positive relationship between student engagement, skills formation (Strauss, Terenzini, 2007; Roulin, Bangerter, 2013; Kilgo et al., 2015) and successful degree completion (Kuh et al., 2008; Wang, Degol, 2014), some studies conducted in other countries (Hsieh, 2014; Choi, Rhee, 2014) do not find positive associations between student engagement and learning outcomes. In the study based on the sample of Taiwanese

students Hsieh (2014) could not establish any associations between student engagement and grades controlling for the demographic characteristics, socioeconomic status and motivation. The results of the study based on the sample of Korean students indicated that the academic experience of Korean students differ from the experience of students from other countries (Choi, Rhee, 2014). As Choi and Rhee (2014) noticed unlike the American students, Korean students are not encouraged to take the initiative, on the contrary, such qualities as restraint and following the instructions are praised by teachers.

The question of the relationship between student engagement and learning outcomes in the Russian educational context remains open. The research related to the topic of student engagement conducted on Russian material focuses mainly on the scale and forms of engagement (Froumin, Dobryakova, 2012; Maloshonok, 2014), while the relationship between student engagement and learning outcomes remained unexplored. Besides, there are significant differences between the Russian and American educational systems. Russian higher education is a vertically built system where university autonomy is limited, educational standards and procedures have a “top-down approach”. American universities have more autonomy in organizing the educational process and can manage resources more flexibly to expand educational and extracurricular opportunities for students. This study sheds more light on how student engagement relates to learning in integrated higher education systems.

### **Problem statement**

The conducted study allows to explore the explanatory possibilities of the concept of student engagement in the Russian educational context and to fill the gap in existing research. In a series of empirical studies, we are trying to understand how different forms of student engagement are related to the following learning outcomes: critical thinking and teamwork skills, as well as the completion of the educational program at the undergraduate level within the normative period of 4 years.

According to the surveys of Russian and international employers, critical thinking and teamwork are two highly demanded skills on the labour market (Podolsky, Pogozhina, 2016; Manpower Group, 2018) and at the same time less developed among graduates (Bondarenko, Lysova, 2016; Loyalka et al., 2021). Degree completion, regardless of skills, is also an important educational outcome and a signal to an employer that an applicant possesses necessary knowledge and skills (Vlasova, 2020). In addition, diplomas of prestigious universities still give a clear advantage in hiring and determining wages (Morley, Aynsley, 2007; Hoekstra, 2009; Rudakov et al., 2017).

Due to the fact that currently there is a gap between the demands of the labour market, skills and knowledge offered by the university (Podolsky, Popov, 2014; Podolsky, Pogozhina, 2016; Bondarenko, Lysova, 2016), this study contributes to the agenda on the uncertainty of the professional trajectories of youth (Sandler et al., 2018; Agarkov et al., 2020). In this work, we focus on generic skills (critical thinking and teamwork) that help students solve non-trivial problems working in team, adapt to new conditions when specific and narrow skills quickly become obsolete and the degree completion within the normative period of four years. The concept of ‘student engagement’ proposes to go beyond the traditional ways of teaching, focused on drilling typical problems, to involve students in the educational and extracurricular components of the university.

## **Literature review**

The researchers (Astin, 1984; Pascarella, Terenzini, 2005; Maloshonok, 2014) define the following types of student engagement:

- Academic engagement – students’ activity in the classroom, which can be viewed as students’ participation in discussions in class; application of knowledge, ideas and concepts from different courses; time spent completing home assignments; the activity of students outside the

classroom, for example, preparing for classes with classmates, discussing substantive issues related to the course with the teacher.

- Extracurricular engagement – students’ involvement in students’ organizations, volunteering and sport activities.

Students’ active participation in class (academic engagement) is positively related to academic achievements (grades) (Kuh et al., 2008). Also, Kuh and colleagues notice the positive impact of student engagement on the degree completion which, in turn, is related to long-term economic and social benefits transmitted to future generations, improving the quality of life not only of an individual family, but also of the society as a whole (Kuh et al., 2008). Some research points to a positive link between students’ participation in collaborative projects, interaction with students from different cultures and gains in critical thinking skills (Tsui, 2008). A special attention is paid to the interaction of teachers and students not only in class, but also outside of class. Collaboration between teachers and students may occur in the process of completing research and applied projects supervised by teachers (Hand et al., 2011). Student engagement in research/project activities fosters independent thinking and the process of synthesis and evaluation of ideas (Kilgo et al., 2015).

Participation in extracurricular activities (student organizations, volunteering and sports) is positively associated with the development of teamwork skills, leadership, and the formation of individual and collective responsibility (Pace, 1984; Pascarella, Terenzini, 2005; Strauss, Terenzini, 2007). As Roulin and Bangerter (2013) show, being a leader of a student organization may imply leadership competencies. Zhang examined the relationships of students’ extracurricular experiences to thinking styles and self-esteem (2001). The researcher established the positive link between participation in leadership projects and creativity-generating thinking styles (Zhang, 2001). Also, students involved in academic and extracurricular activities have higher chances to complete academic program (Wang, Degol, 2014). In addition, involvement in the extracurricular

activities at university helps students to increase social capital, making connections not only with peers, but also with representatives of the academic community and the commercial sector (Kasharin, 2017). It was also found on the American sample that extracurricular involvement contributes to the starting salary of recent graduates (Hu, Wolniak, 2010). Student participation in extra-curricular activities has become a strategy to develop and practice the necessary skills and evidence them when graduates are applying for a job (Chia, 2005). Generally, US employers believe that graduate involvement in purposeful activities, other than studies, demonstrate the qualities of applicants (Cole et al., 2007; Kim, Bastedo, 2016).

The concept of student engagement is associated with students' success which is defined as the development of skills and degree completion. In this regard, at universities in the USA, Canada and Australia student surveys which measure what and how often students do at university and how they evaluate academic and extracurricular activities have gained popularity (Pascarella et al., 2010; Johnstone et al., 2018). The results of such surveys are used as an indicator of the quality of education (Pace, 1984; Pascarella et al., 2010; Axelson, Flick, 2011; Pike et al., 2012).

Despite the fact that the concept of student engagement is actively used by many researchers, it is not devoid of criticism. For example, this theory is criticized for its ambiguous theoretical justification and the inability to take into account all effective practices that could contribute to the development of students (Gourlay, 2015; Kahn, 2017). Macfarlane (2015) points out that evaluating students for their activity in the classroom, willingness to participate in group work, possibly against their wishes, can violate the right of students to free studying. Also, some researchers question the relevance of this theory to other educational systems (Hsieh, 2014; Choi, Rhee, 2014). Other researchers (Quaye, Harper, 2014) suggest that the creation of an "engaged educational environment" for students did not cause difficulties when the majority of the student body in the USA was white middle-class young people. However, as the student environment has become more heterogeneous, the possibilities of universal engagement theory

become more limited. Although the literature provides solid evidence of the positive association between student engagement and learning outcomes, the results of studies show that the majority of students are disengaged. Students pay little attention to their studies and express little interest in activities at university (Arum, Roksa, 2011; Brint, Cantwell, 2012; Mayhew et al., 2016). In the Russian context, researchers also point to the lack of students' engagement. Froumin and Dobryakova (2012) notice that students (36%) do not strive to develop research skills, older students regularly miss classes without reasonable excuse (50%).

It is worth noting that Russian researchers see students' motivation as the main factor of learning outcomes (Maloshonok et al., 2015; Semenova, 2016; Maksimenko, 2018). Although motivation is a necessary aspect of students' involvement, Astin asserted that the behavioral aspects of involvement, such as what an individual does and how she or he behaves, are more important than their desire to participate in the learning process (Wang, Degol, 2014). Involvement is more susceptible to direct observation and measurement while motivation is more abstract psychological construct (Astin, 1984). Although students may be highly motivated to perform a task, they would not invest equal time and efforts in accomplishing a task. In international research literature, the concept of "student engagement" severs with motivation, as they have different manifestations and structures (Fredricks et al., 2016). Motivation refers to internal processes that explain how and why students participate in learning activities, and engagement is considered an external manifestation of motivation (Wang, Degol, 2014). Researchers note that a student may have high motivation aimed at successfully studying at a university, but he may be completely disengaged in university life (Newmann, 1992). In Russian studies, the academic success/ failure of students is limited to the indicator of their academic performance, while some Russian research notes not only the important role of motivation, but also the conditions of the university environment (Drozdova, 2020). In this regard, the theory of student engagement can help explain the learning outcomes of students at Russian universities, as well as contribute to their development at the university.

## **Aim of the study**

To investigate the relationship between student engagement and learning outcomes of students at Russian universities.

## **Goals of the study**

1. To analyze the relationship between student academic engagement, extracurricular engagement, and the development of critical thinking skills of students at Russian universities.
2. To check the relationship between extracurricular student engagement and teamwork skills of students at Russian universities.
3. To check the relationship between extracurricular student engagement of students at Russian universities and the completion of the educational program within the normative period (4 years).
4. To analyze the explanatory possibilities of using student engagement theory in the Russian higher education by comparing with the American educational context.

## **Theoretical framework**

The theoretical model of student engagement, which was developed by A. Astin (1984) and extended by other researchers (Terenzini et al., 1995 a, b; Kuh, 2008), lays the foundation of this work. The main idea of the conceptual model of student engagement is that undergraduate students differ by their level of pre-college preparation, academic achievement, gender, and socioeconomic status, but the university environment provides them with opportunities and resources to accumulate student experiences by being actively involved in various aspects of university, thereby fostering the development of learning outcomes (Astin, 1984; Astin, 1993).

The involvement principles developed by Astin (1984):

1. Involvement refers to the investment of physical and psychological energy in various objects. In other words, the more time and energy students spend on participating in educationally purposeful activities, the more they benefit.
2. Regardless of its object, involvement occurs along a continuum. That is, different students manifest different degrees of involvement in a given object, and the same student manifests different degrees of involvement in different objects at different times. For example, an elected student government officer may devote many hours to related tasks over several semesters, other students may attend only a few meetings.
3. Involvement has both quantitative and qualitative features. The extent of a student's involvement in academic work, for instance, can be measured quantitatively (how many hours the student spends studying) and qualitatively (whether the student reviews and comprehends reading assignments or simply stares at the textbook and day-dreams).
4. The amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program. For example, organizing a campus-wide event requires more effort and is potentially a more powerful learning experience than merely attending the event.
5. The effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement.

The concept of student engagement focuses on the relationship between the institutional environment of the university, student behavior (activity/inactivity in the classroom and outside) and learning outcomes, and it also serves as an indicator of the students' attitude to their studies (Maloshonok, 2014). The institutional environment of the university means both the physical aspects of the university (the building itself and its resources, for example, a library, computer classes, student organizations, sports sections, etc.) and human (teachers, administrative staff and other students interacting with each other).

## Research questions and publications

1. Is there a relationship between student academic engagement, extracurricular engagement, and the development of critical thinking skills of students at Russian universities?

### Publication:

Shcheglova I., Koreshnikova Y., Parshina O. (2019). The Role of Engagement in the Development of Critical Thinking in Undergraduates. *Educational studies*, 1(1), 264-289.

Author's contribution: problem setting, introduction and conclusion, data analysis.

2. Is there a relationship between students' extracurricular engagement and teamwork of students at Russian universities?

### Publication:

Shcheglova I. (2019). Can Student Engagement in Extracurricular Activities Facilitate the Development of Their Soft Skills? *Monitoring of Public Opinion: Economic and Social Changes Journal*, 6, 111-121.

3. Is there a relationship between student engagement and the completion of the educational program within the normative period (4 years)?

### Publication:

Shcheglova I., Gorbunova E., Chirikov I. (2020). The Role of the First-Year Experience in Student Attrition. *Quality in Higher Education*, 26(3), 307-322.

Author's contribution: introduction and conclusion, compiling of the literature review, consultation with data analysis.

4. What are the possibilities and limitations of using student engagement theory in the Russian higher education compared to the American educational context?

### Publication:

Shcheglova I. (2018). A Cross-Cultural Comparison of the Academic Engagement of Students. *University Management: Practice and Analysis*, 22(3), 155-164.

Also, to answer this question the results of the publications (1-3) are used.

## **Data, Methodology and Research Design**

This study utilizes two types of data: quantitative and qualitative collected through the following research projects:

1. “Student experience in the research university” (**SERU**), launched in 2012.
2. “Study of Undergraduate Performance” (**SUPER-test**), conducted from 2015 to 2019.

**“Student Experience in the Research University” (SERU)** is a cross-sectional survey which allows to create a scan of formal (in-class) and informal (out-of-class) experiences of undergraduate students from various countries. It asks questions on academic, research and extracurricular engagement, time use, evaluation of a student’s major, satisfaction and self-perceived gains of various skills such as critical thinking, communication, leadership etc. The design of the survey allows to add administrative data such as degree completion, grades etc. The SERU instrument was developed in cooperation with the Center for Studies of Higher Education UC Berkeley and University of Minnesota. The model of student engagement is used as a conceptual model of the survey. The translation of the original version of the SERU questionnaire into Russian was consistent with the guidelines of Van de Vijver and Hambleton (1996) and the recommendations of Epstein et al. (2015). First, back-translation procedures were adopted to ensure conceptual equivalence across languages. Two translators who are fluent in both source language (English) and target language (Russian) and had previous experience in translating surveys were selected. Also, the survey was piloted on the student sample (N=30 respondents).

**“The Study of Undergraduate Performance” (SUPER-test)** is focused on the assessment of the quality of engineering education in comparative perspective. It is a longitudinal survey based on randomly selected undergraduate students of Computer Science (CS) and Electrical Engineering (EE) majors at Russian universities. The longitudinal design of SUPER allows to assess the actual skill

gains (how much students learn over time) and compare the skill gains within and across countries. SUPER uses nationally representative (random) samples of institutions and students within institutions. Also, it provides contextual information about students' background, and their university characteristics etc. The advantage of this study – it implements a valid measure of critical thinking – the exam which is a part of the HEIghten® suite of assessments developed by the Educational Testing Service (ETS). The HEIghten Critical Thinking assessment was designed according to a systematic review of research on critical thinking in higher education which reflects the ability to develop sound and valid arguments, evaluate evidence and its use, understand implications and consequences, and differentiate between causation and explanation (Liu et al., 2016). The original version of the test was piloted on the sample of American students (Liu et al., 2016). The evidence of validity and reliability is presented in the paper of Shaw et al. (2019).

The qualitative data were collected within the scope of the Study of Undergraduate Performance project in 2016 and contained 44 interviews with students from 6 Russian universities.

Combining two types of data (methodological triangulation) “provides an opportunity to analyze the environment and the immediate context in which educational achievements are formed” (Khavenson, 2019) and it allows to assess the consistency and validity of the results (Chesnut, Hitchcock, Onwuegbuzie, 2018). We follow the explanatory sequential mixed methods approach when the researcher first conducts quantitative research, analyzes the results and then builds on the results to explain them in more detail with qualitative research (Creswell, 2014).

Five datasets (four sets of data are quantitative and one is qualitative) are used to solve the goals of the dissertation.

**Dataset 1: «SERU\_skills assessment»** was generated through the SERU survey conducted at a national research university in 2017 (N = 3 344 respondents, response rate 22%).

The variable ‘gains in critical thinking’ was generated based on the answers to this question “*Please rate your level of proficiency in analytical and critical thinking skills when you **started here vs. now.***” In the dissertation we focus on two skills: 1) critical thinking and 2) teamwork. The response categories were presented on a six-point scale, ranging from “very poor” to “excellent”. Student self-assessment of improvement in their critical thinking abilities was estimated as the difference between the two variables (“*when you **started here vs. now***”) obtained from the responses, and then recoded into dichotomous variable of the level of critical thinking “did not change” (0), or “improved” (1).

Also, students were asked about their engagement in class (academic engagement) and out of class (extra-curricular engagement) controlling for the following characteristics: gender, parents’ education, employment, year of study, GPA.

**Dataset 2: «SUPER-test\_critical thinking»** was collected through the SUPER project - a longitudinal survey based on randomly selected undergraduate students of Computer Science (CS) and Electrical Engineering (EE) majors at 34 Russian universities. The collection of the Russian data started in Fall 2015 with the baseline survey which includes two cohorts of students: first-year students (freshmen) and third-year students (juniors) and then the endline survey was repeated after 1-2 years when the same students who became third-year students (juniors) and fourth-year students (seniors). The same critical thinking exam was given twice to the same students in the baseline (first and third-year students) and in the endline (third and fourth-year students). The score on critical thinking obtained during the endline serves as the main dependent variable. Also, the following questions were included in the questionnaire: a) participation in student clubs/organization; b) participation in volunteering activities; c) participation in sport activities and such background characteristics as gender, parents’ education, year of study.

**Dataset 3: «SUPER-test\_extra-curricular engagement»** contains the qualitative data collected from interviews with 44 students, participated in the SUPER-test project. They were asked the questions related to their extracurricular engagement:

- *Are you involved in any activities in university besides your studies? For example, student clubs, organizations, volunteering etc.*
- *If yes, what do these activities include?*
- *How much time do you spend on your extra-curricular activities?*
- *Does your extracurricular activity have any impact on your studies?*
- *Why are you involved in these activities? What benefits do you see?*

**Dataset 4: «SERU\_dropout»** was constructed from two longitudinal datasets collected in 2013 (N = 3 130 respondents, response rate 22%) and 2015 (N = 3 311 respondents, response rate 24%). The samples include BA students of various majors enrolled in a Russian national research university.

The dataset «SERU\_dropout» combines two longitudinal datasets on two cohorts of students which were created adding administrative information about completion/non-completion of their BA degree within the normative period of 4 years as well as GPA, region of residence, major. Also, there were answers to the following questions:

- Student engagement (academic engagement; disengagement; teacher/student interaction; collaborative engagement; level of academic challenge);
- Satisfaction with academic and social experience;
- Belonging to university;
- Plans for a higher academic degree;
- Additional questions on: gender; major; GPA; type of enrollment; parents' education; employment.

Only first year students were included in the analysis (2012-2013 academic year = 354 students and 2014-2015 academic year = 425 students). Based on the results of previous research, the majority of students drop from university during the first year (Harvey et al., 2006; Willcoxson et al., 2011; Stiburek et al., 2017;

Kondratjeva et al., 2017; Zając, Komendant-Brodowska, 2018). We use two cohorts of students to check the consistency of results over time.

**Dataset 5: «SERU\_cross-cultural comparison»** was generated from the SERU project. The total sample was 26,648 BA students who were studying at two Chinese universities (5,596), two Japanese universities (5,429), one UK university (2,352), two US universities (9,927) and one Russian university (3,344) in 2016-2017. To answer the research question posed in the dissertation we use the sample of students from two US universities and a Russian university.

### **Analytical strategy**

1. The first goal – **the analysis of the relationship between student academic engagement, extracurricular engagement, and the development of critical thinking skills** – was based on the quantitative data of two projects: (1) SERU (dataset «SERU\_skills assessment») and (2) SUPER-test (dataset «SUPER-test\_critical thinking»), combined with qualitative data (3) SUPER-test (dataset «SUPER-test\_extra-curricular engagement»).

To explain the relationship between critical thinking skills and academic and extracurricular engagement, the binary logistic regression was run (dataset «SERU\_skills assessment»). The variable ‘self-perceived critical thinking skills’ served as the dependent binary variable. Also, the following independent variables were included in the analysis:

- Academic engagement – index of academic engagement, constructed with the factor analysis, includes the following variables: brought up ideas or concepts from different courses during class discussions; contributed to a class discussion; asked an insightful question in class.
- Extracurricular engagement (participation in student organizations, volunteering and sport activities).
- Confounding variables: gender, employment in/out university, year of study, GPA.

**The results are presented in the publication:** Shcheglova I., Koreshnikova Y., Parshina O. (2019). The Role of Engagement in the Development of Critical Thinking in Undergraduates. *Educational studies*, 1(1), 264-289.

To confirm or disprove the results obtained on the dataset «**SERU\_skills assessment**», we used the dataset «**SUPER-test\_critical thinking**». To check if there is any association between engagement in student clubs, volunteering and sport activities and the development of critical thinking skills of Russian students, we ran a linear regression model (fixed effect) with the z-score of endline critical thinking (HEIghten test) as a dependent continuous variable and participation in sports or athletic organizations, student organizations (non-athletic) or doing community service/volunteer work as independent binary variables controlling for such confounding variables as baseline critical thinking, gender, parents' education, and year of study (N=770 respondents). As the same critical thinking test was given to students in the baseline and in the follow-up, the baseline critical thinking can serve as a pre-test.

The qualitative data («**SUPER-test\_extracurricular engagement**») collected through the interview with 44 students were used as a supplement to the quantitative sources and explain the results in more detail. The general deductive approach was used to analyze the interview data.

The deductive analysis is aimed to test whether data are consistent with prior assumptions, theories, or hypotheses identified by an investigator. This approach to qualitative data analysis commonly starts with a pre-determined coding framework which could have been informed by an existing theory or model – in this case, Astin's theory of student engagement (Kuckartz, Rädiker, 2019). The qualitative data analysis was performed with MAXQDA program (<https://www.maxqda.com/>).

**The results are presented in the Appendix A.**

2. For the second goal – **the analysis of the relationship between extracurricular student engagement and teamwork skills** – we used the SERU project (dataset «**SERU\_skills assessment**»).

The binary logistic regression was used to check the relationship between extra-curricular engagement and ability to work in team. As the dependent variable we used 'self-perceived gains in teamwork skills'. The main independent variables: extra-curricular engagement – participation in student organizations/clubs, volunteering activities and confounding variables: gender, employment, year of study, GPA.

**The results are presented in the publication:** Shcheglova I. (2019). Can Student Engagement in Extracurricular Activities Facilitate the Development of Their Soft Skills? *Monitoring of Public Opinion: Economic and Social Changes Journal*, 6, 111-121.

3. To solve the third goal – **the analysis of the relationship between student engagement and the completion of the educational program within the normative period** – the dataset «SERU\_dropout» was used.

Due to the fact that it is not possible to allocate students who could not move to the next year and had to continue studying at the same year or transferred to another university, thereby increasing the normative period of study, we count students who have not completed their studies within 4 years as 'dropouts'.

The binary logistic regression was used to check the relationship between student engagement and the completion of the educational program within the normative period. The dependent variable was a binary variable "completed/dropped out". The independent variables were:

- Type of engagement, constructed with the factor analysis: academic engagement; disengagement; teacher-student interaction; collaborative learning; level of academic challenge;
- Satisfaction with academic and social experience;
- Belonging to university;
- Plans for a higher academic degree;
- Additional questions: gender; major; GPA; type of enrollment; parents' education; employment.

**The results are presented in the publication:** Shcheglova I., Gorbunova E., Chirikov I. (2020). The Role of the First-Year Experience in Student Attrition. *Quality in Higher Education*, 26(3), 307-322.

4. The fourth goal – **the analysis of the possibilities of using the student engagement theory in the Russian higher education by comparing it with the American educational context** was solved using the «**SUPER-test\_extracurricular engagement**» and «**SERU\_cross-cultural comparison**» datasets.

To identify significant differences in the engagement of students studying in universities in Russia and the USA, factor analysis was used to build the index of academic engagement and variance analysis to identify significant differences in the degree of academic engagement of students.

**The results are presented in the publication:** Shcheglova I. (2018). A Cross-Cultural Comparison of the Academic Engagement of Students. *University Management: Practice and Analysis*, 22(3), 155-164.

Also, the conclusions were formulated on the basis of the mentioned publications (1-3).

## **Main results**

### **1. The analysis of the relationship between student academic engagement, extracurricular engagement, and the development of critical thinking skills.**

The analysis of the dataset «SERU\_skills assessment» showed the positive association between students' academic engagement, extra-curricular engagement and 'self-perceived critical thinking'. Based on the results, the more the student is involved in the educational process in class and out of class, the stronger his/her ability to think critically. However, the analysis conducted on the dataset «SUPER-test\_critical thinking» did not find any relationship between extra-curricular engagement and critical thinking. This conclusion contradicts the results of studies conducted on samples of American students, which show that participation in

extracurricular activities (volunteering, student clubs and sport activities) is positively associated with the development of critical thinking of students.

The absence of statistically significant relationships can be explained with the qualitative data («SUPER-test\_extra-curricular engagement»). Despite the fact that the half of students confirmed their involvement in extra-curricular activities, mainly it was a temporarily involvement. Students get involved in extra-curricular activities at their first year of studies but then they stop being active. The majority of students get involved in Studaktiv/Profsouz “for the sake of box-checking”. Students who have never been involved or currently not involved in extracurricular activities relate their disengagement to the following reasons: poor extracurricular life, lack of interest, employment, lack of time. For the majority of students, studies remain their priority, so they devote most of their time to attending classes and completing home assignments. In general, respondents perceive extracurricular sphere as a leisure activity which can be done for entertaining purposes rather than the development of skills. Unlike American universities, where much attention is paid to the development of extracurricular activities, in Russian universities the choice of activities is limited. Speaking about benefits of student engagement in extra-curricular activities, they reported that they neither master their skills nor improve learning outcomes as they mostly take it as an opportunity for entertainment.

We attribute the absence of the positive effect of students’ engagement in extracurricular activities at Russian universities on critical thinking to the low development of informal learning settings, high academic workload and weak support from governmental bodies. Since the existing educational standards and procedures do not touch the extracurricular sphere, most Russian universities pay little attention to it.

## **2. The analysis of the relationship between extracurricular student engagement and teamwork skills.**

The analysis established the positive association between student extra-curricular engagement and teamwork («SERU\_skills assessment »). The results

confirm the statistically significant gains in teamwork skills of Russian students who are involved in student organization compared to those who are not.

This result is in line with Russian and international research (Pascarella, Terenzini, 2005; Strauss, Terenzini, 2007; Bekova, Kasharin, 2018). Russian researchers (for example, Bekova and Kasharin, 2018) noticed that teamwork and communication skills are among the most developed skills through extracurricular activities. To implement activities that go beyond the scope of educational process, students should interact with other students of various majors, with faculty, university administration, graduates and representatives of the community (Bekova, Kasharin, 2018).

### **3. The analysis of the relationship between student engagement and the completion of the educational program within the normative period.**

The regression analysis showed the statistically significant association between the likelihood to complete the academic program within 4 years and student disengagement (dataset «SERU\_dropout»). Students, who tend to turn in course assignments late, go to class unprepared, or skip classes, are more likely to drop out. At the same time students who have plans to obtain the highest academic degree and who set long-term goals, and establish high standards and requirements for themselves are less likely to drop out.

The results are significant for both cohorts of students (2012-2013 and 2014-2015 academic years). The sustainability of the results suggests that these factors are a specific feature of Russian education. While studies conducted in other educational context also see the negative consequences of limited student engagement (Harvey et al., 2006; Arum, Roksa, 2011; Brint, Cantwell, 2012), it does not necessarily lead to a student dropping out from university. In the Russian educational context, the successful completion of the educational program directly depends on the clear fulfillment of academic requirements: regular attendance, completion of all tasks etc.

Neither social integration nor belonging are significant in the Russian educational context. This finding contradicts the results of research conducted in

the US context. As Bers and Smith (1991) found, social experience had a larger effect on outcomes than academic experience did. One possible explanation is that Russian universities have fewer opportunities for students to engage in extracurricular activities and higher academic workload.

Also, employment is not a significant factor of dropout. Based on the results of Rudakov and colleagues, approximately 65% of Russian students combine study and work. However, the majority of students start working during their third year of study (Rudakov et al., 2017). Taking into account the fact that most of them drop out during the first year of their studies, and those who managed to keep up until the second year are more likely to complete their academic programs within the normative time.

#### **4. The analysis of the possibilities of using the student engagement theory in the Russian higher education by comparing it with the American educational context.**

There are no significant differences in the degree of student engagement between leading Russian and American universities. However, the quality and specificity of engagement differ. The academic involvement of Russian students is focused on meeting the requirements of the educational process, while American students have more opportunities for extracurricular activities. For example, less share of Russian students (12%) collaborate with teachers outside of class hours on the questions related to academic materials compared to US students (21%). As far as extracurricular engagement is concerned, 32% of Russian students take part in student organizations/clubs, 30% are involved in volunteering (Appendix A). On the contrary, from 60% to 95% of students at US universities are involved in extracurricular activities (Wang, Shiveley, n.d; Foreman, Retallick, 2012).

The prevailing share of students at Russian universities does not participate in extracurricular activities at the university. This is primarily due to the intense academic workload, which can be an obstacle for students to engage in any other activity than study. In the study conducted by Maloshonok (2020), it is shown that Russian students spend more time in the classroom compared to American

students. Also, many students have to combine their studies and employment outside the university, so they do not have time for extracurricular activities (Obukhova, Tanova, 2016; Ivanova, Logvinova, 2017). At the same time, our study and a number of international studies show a positive relationship between student extracurricular engagement and the development of generic skills (Pascarella, Terenzini, 2005; Kilgo et al., 2015).

## **Limitations**

Although this study shows important results, it has some limitations which we have to consider before implementing the results.

1) The dataset «SERU\_skills assessment» contains the measures of students' retrospective self-perceived skills (critical thinking and teamwork) during their studies at university.

Despite the self-perceived measure of the development of skills is more a subjective indicator of actual skills which reflect what students believe they have learned, the use of a retrospective pre-test and post-test of skills can provide a valid assessment of educational achievements (Pike, 1995; Douglass et al., 2012; Thomson, 2017). Also, Shaw et al. (2019) confirm that overall students' self-rated scores of their ability corresponded with their objective test performance.

2) Data collected from the projects SERU («SERU\_skills assessment» and «SERU\_dropout»), are based on one university which has the status of a leading national research university and which is a member of '5-100' program. The conclusions drawn from the data of the SERU project cannot be generalized to the entire population of Russian universities. Nonetheless, from a research point of view, this university is one of the largest Russian universities where internationalization processes have been taking place for several years, new educational practices have been tested (for example, the system of minors, a model of a project university). This university steadily improves its positions in world rankings. In this regard, the university can act as a role model for other Russian universities which can implement effective practices.

3) To overcome these limitations, we complement the SERU data with the data from the Study of Undergraduate Performance (SUPER-test) (datasets «SUPER-test\_critical thinking» and «SUPER-test\_extracurricular activity»). The SUPER-test has a longitudinal design and uses a nationally representative sample. The advantage of this study – it implements a valid measure of critical thinking – the exam which is a part of the HEIghten® suite of assessments developed by the Educational Testing Service (ETS). Besides, the study utilizes qualitative data – dataset «SUPER-test\_extracurricular engagement» – which allows to explain the absence of the relationship between students’ engagement in extracurricular activities and critical thinking.

4) While interpreting the results, we must take into account that the design of the study shows the existing relationship between variables, but does not allow making causal inferences.

### **Statements to defend**

1. Student academic engagement (student activity in class, for example, participation in class discussions; applying knowledge, ideas from different courses; time invested in tasks) is positively related to the development of critical thinking skills.
2. Participation in extracurricular activities (active involvement in student organizations) is positively associated with the ability to work in teams.
3. Academic disengagement – violation of academic requirements (failure to complete tasks, skipping classes, etc.) is the strongest predictor of student attrition in the Russian educational context.
4. The nature of academic engagement of students at Russian and American universities varies. Russian students spend much more time attending classes and performing tasks compared to American students. Russian students’ extracurricular engagement in the current format is weakly connected with students’ learning outcomes.

## **Scientific and practical implications**

This work is the first attempt to study the relationships between student engagement and students' learning outcomes in the Russian higher education context.

In addition to other works (e.g. Hsieh, 2014; Choi, Rhee, 2014), it demonstrates the limitations of engagement theory (originally developed in the American higher education context) in educational contexts where students have significantly limited opportunities to build their educational trajectory and space for engagement. The inflexibility of the curricula of Russian universities and the high academic workload limit the possibilities of both academic engagement within a specific course (for example, the possibility of reading additional literature or deeper discussions of topics of interest with other students) and extracurricular engagement. As a result, the participation of Russian students in additional activities that go beyond the formal requirements of the educational process is associated with higher costs and it is not always converted into higher learning outcomes comparing with students of American universities.

Today in Russia there are active discussions on how to increase students' learning outcomes. In this regard, the study can be useful for developing measures to increase degree completion rates and reshape students' curriculum, distributing the academic workload and planning new initiatives at the university. The results are important for understanding how Russian universities organize and structure the educational experience of students. The majority of Russian students are not involved in informal education (participation in student organizations, volunteer projects).

Nonetheless, the extracurricular sphere can serve as an accelerator of knowledge obtained during studies. In addition, Russian universities do not have a system to support lagging students who are at risk of dropping out. While timely identification of such students and tutor and/or psychological support can guide students in the "right direction" and prevent their attrition.

The findings suggest that students with higher level of academic and extracurricular engagement are more likely to develop and improve skills and successfully complete the educational program within the normative period (4 years for Bachelors). These findings confirm the need to use active pedagogical practices to involve students in the educational process in the classroom, and also demonstrate the importance of creating and developing accessible platforms and various formats of extracurricular activities at the university.

Based on the results of the study, the following recommendations, which can be used by universities as possible tools to improve the educational results of students, are formulated. Due to the fact that this work was not intended to test the effectiveness of the proposed initiatives, they require preliminary testing:

1. Critical thinking and teamwork skills can be developed by involving students in extracurricular activities at university. This may require the following possible steps:

- Redistribution of academic workload and expansion of new educational formats.
- Formation of other accessible platforms and open formats of extracurricular activities at the university, and creating a Student Affairs office to coordinate students' extracurricular sphere.
- Giving a credit to students' extracurricular activities (for example, for the active participation in the organization of a conference, volunteering project, etc.).

2. To increase the proportion of students completing an educational program within the normative period, the following tools and initiatives may be taken:

- Monitoring of student engagement (attendance, completion of tasks) at the institutional level and providing targeted assistance to students at risk, for example, sending reminders to attend classes and face-to-face consultations.
- Remedial or support programs which struggling students can attend when they feel they cannot cope with academic material.

- Placing first-year students in dormitories closer to academic buildings to minimize their commuting time. This will allow them to spend more time at university and to be engaged in more learning activities.
- Supporting learning communities (a group of students who live together on a residence hall floor with common major, career and/or personal interests). This initiative is aimed to help first-year students adjust to a new environment and to direct the classroom experience.
- Providing employment opportunities for students at universities.

The study has prospects for the further research of student engagement and student learning outcomes. In this regard, three areas can be considered as particularly promising:

1. Identification of mechanisms for the formation of a positive relationship between student engagement in academic and extra-curricular activities and the development of critical thinking and teamwork skills. In the future, it is necessary to study the specifics of academic and extracurricular activities in order to understand which formats can contribute more to the development of critical thinking, teamwork, and what practices universities can centrally develop.
2. To analyze the relationship between student academic and extracurricular engagement. When will excessive extracurricular engagement have a negative effect on academic engagement and learning outcomes? What are the conditions for maintaining a balance between the extracurricular and academic workload of students?
3. To conduct a more detailed cross-cultural analysis of the concept of student engagement, which would include not only US, but also European and Asian universities, as well as universities of the “Global South”.

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## Appendix A.

**Table 1. Students' engagement in extracurricular activities grades, in %**

	Community service/volunteering		Student organizations		Sports	
	1 Year	3 Year	1 Year	3 Year	1 Year	3 Year
% of involved students	30%	26%	32%	23%	46%	47%
N	967	1,825	970	1,826	970	1,826

**Table 2. The relationship between Russian students' engagement in extracurricular activities and critical thinking skills (EE & CS majors)**

Variables	1	2	3	4
Sports or athletic organizations	-0,084** (0,098)			-0,071 (0,092)
Student organizations (non-athletic)		-0,018 (0,068)		0,034 (0,075)
Community service/volunteer work			-0,073 (0,082)	-0,071 (0,083)
Critical thinking (pre-test)	0,693*** (0,044)	0,707*** (0,047)	0,706*** (0,048)	0,701*** (0,052)
Female	0,009 (0,074)	0,029 (0,071)	0,032 (0,072)	-0,020 (0,074)
At least one parent has a higher education degree	-0,026 (0,154)	-0,206 (0,153)	-0,217 (0,156)	-0,028 (0,108)
3 grade (base = 1 grade)	-0,244*** (0,088)	-0,248*** (0,082)	-0,245*** (0,083)	-0,732*** (0,063)
Constant	0,777***	0,898***	0,750***	0,922***

	(0,197)	(0,120)	(0,204)	(0,110)
N	771	771	768	768
R-squared	0,457	0,456	0,457	0,457

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Robust standard errors in parentheses

\*\*\* p<0,01, \*\* p<0,05, \* p<0,1

**Table 3.** Code frequencies count

#	Code	Frequencies Count
1	Engagement in extracurricular activities	23
<i>Benefits of engagement</i>		
2	planning and managing events	7
3	team work	1
4	energy	3
5	informal atmosphere	3
6	entertainment	3
7	socialization	5
8	keep yourself busy	1
9	networking/connections	3
10	self-development	1
<i>Impact on studies</i>		
12	no effect on studies	11
13	easy to juggle studies & extracurricular	6
14	difficult to combine extracurricular activities	1

& studies		
<i>Type of extracurricular activities</i>		
15	member of student government	4
16	sport activities	11
17	KVN	2
18	Aktiv/ Profsouz	6
19	research activities	3
20	temporarily involvement	8
<i>Reasons of disengagement</i>		
21	poor extracurricular life	4
22	lack of time	11
23	employment	8
24	no interest	5
25	studies - priority	12
26	other hobby for fun	15