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Master in Urban Management and Development

**FACTORS OF CAREER CHOICE:
THE ROLE OF SCHOOL EDUCATION**

Master's Thesis by 2nd year student
Concentration – Master in Urban Management and
Development
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Описание цели, задач и основных результатов	<p>Целью данного исследования является разработка рекомендаций по корректировке политики в отношении школьного образования на основании анализа образовательной системы и особенностей принятия решений абитуриентами по выбору будущей профессии.</p> <p>Для достижения цели исследования был проведен анализ результатов опроса среди выпускников и текущих студентов университета, которые включал изучение уровня удовлетворённости выбранным направлением обучения и университетом, а также информацию о соответствии текущей профессии полученному образованию. В процессе работы были исследованы причины, влияющие на выбор профессии и уровень удовлетворённости образованием. В работе предлагаются государственные меры, которые могли бы способствовать развитию системы среднего образования, увеличению числа квалифицированных кадров и повышению уровня удовлетворённости граждан высшим образованием.</p>
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ABSTRACT

Master Student's Name	Baulina Anastasiia Konstantinovna
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Description of the goal, tasks and main results	<p>The goal of the study is to formulate policy measures for educational regulators that can increase the level of high education satisfaction and compliance of the career path with the obtained specialization to improve the educational costs effectiveness.</p> <p>To accomplish the goal this paper provides the analysis of survey results regarding the level of satisfaction with obtained high education of university graduates and current university students. Also, the survey investigates the compliance of chosen career with university degree. The research reveals factors, which influence the choice of educational direction and satisfaction level. The work provides recommendations on policy measures that could assist the development of school education, increase the share of qualified employees, and improve the overall level of high education satisfaction.</p>
Keywords	School education, career choice, career path, high education

ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ

Я, Баулина Анастасия Константиновна, студентка второго курса магистратуры направления «Менеджмент», заявляю, что в моей магистерской диссертации на тему «Факторы выбора профессии: роль школьного образования», представленной в службу обеспечения программ магистратуры для последующей передачи в государственную аттестационную комиссию для публичной защиты, не содержится элементов плагиата.

Все прямые заимствования из печатных и электронных источников, а также из защищенных ранее выпускных квалификационных работ, кандидатских и докторских диссертаций имеют соответствующие ссылки.

Мне известно содержание п. 9.7.1 Правил обучения по основным образовательным программам высшего и среднего профессионального образования в СПбГУ о том, что «ВКР выполняется индивидуально каждым студентом под руководством назначенного ему научного руководителя», и п. 51 Устава федерального государственного бюджетного образовательного учреждения высшего образования «Санкт-Петербургский государственный университет» о том, что «студент подлежит отчислению из Санкт-Петербургского университета за представление курсовой или выпускной квалификационной работы, выполненной другим лицом (лицами)».



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02.06.2022 (Дата)

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I, Baulina Anastasiia Konstantinovna, second year master student, program «Management», state that my master thesis on the topic «Factors of Career Choice: the Role of School Education», which is presented to the Master Office to be submitted to the Official Defense Committee for the public defense, does not contain any elements of plagiarism.

All direct borrowings from printed and electronic sources, as well as from master theses, PhD and doctorate theses which were defended earlier, have appropriate references.

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02.06.2022 (Date)

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INTRODUCTION

Making decision about career choice is the important stage for every school student as it influences the future life and its trajectory. In high school students are expected to choose the learning path, which they are going to follow in the university and in the professional life. To make such decision school goes need not only to identify their interests and abilities, but also to have enough information about future professions, required skills and university programs' offerings (Alloway et al, 2004). High school students need to think, understand, and decide what their life would look like in 5-10 years (Yaghi and Alabed, 2021). Often it becomes quite frustration for children to identify what they want and can do on such a long-time horizon considering uncertainty and volatility of the world. Even in stable and predictable world, it is difficult to make such an important decision without having all necessary information and with such a huge variety of alternatives (Hemsley-Brown and Oplatka, 2015). The whole situation is getting worse when it comes to constantly changing conditions. For example, it is stated that 85% of the jobs that current students are studying for will not exist in 2030 (The Institute for the Future). Even if major international organizations cannot come to a common opinion regarding forecasts of future professions, how can we expect it from high school students and who is responsible for helping them to make career choice?

At first glance it seems that schools should be responsible for providing all necessary information for school students so they can decide. This is only partly true because it is impossible for schools to have the most updated information without the help of other stakeholders – universities and labor market. The latter one identifies the demand of professions and requirements for employees (OECD, 2017). Universities, in their turn, are intermediaries between schools and labor market (Giménez, Guitert and Lloret., 2004). In the ideal world, labor market should immediately identify changes in professions and signal it to universities, while universities should have an ability to process this information and make necessary adjustments to existing programs or develop new ones (Arcidiacono, Bayer and Hixmo, 2010). Moreover, as universities are sponsored by the government and subsidies vary among universities and among programs, the government policy should perfectly reflect the labor market need. In other words, the number of budget places for certain programs should vary depending on the need of certain profession (Machin and McNally, 2007). This stimulus should be clear and reached by schools. In order to have a flexible mechanism, which reflects the real-world labor market situation, information flows should be fast enough without any losses. Even if nowadays the information exchange between labor market and universities is

established, it seems that schools still do not receive all necessary information, which leads to school student's unawareness (Kobia-Acquah et al, 2020).

The focus of high school students is to pass government exams in last school year and enter university. Even if high school students understand the importance of the choice, they are limited in time to investigate different options as it is necessary to decide and start preparation as soon as possible. School students cannot think long term under pressure and stress, they want to delegate this responsibility to someone else (Lane, 2013). Therefore, the choice of specialization is often associated with parent's decision or peers' influence (Jungen, 2008). Wrong circumstances and not own conscious decision of educational direction and future profession can lead to students' disappointment of high education, life unsatisfaction, working not by obtained education and possible university expulsions (Borgonovi at al, 2018). At country level this could result in low-qualified employees, high university dropout rates, inefficient public funding allocations, lack of certain specialists on the labor market. Education is a crucial factor for country development as it influences the economic growth, social development, equality and social mobility, technological development and living standards of citizens (Bhardwaj, 2016). Education forms the future generation of the country; therefore, it must be deeply analyzed.

The current educational system in Russia does not provide enough support to school graduates to improve their career choice. The percentage of employees working not by obtained specialization in Russia is relatively higher than in most of developed countries, while public spending on education as percent of GDP makes up a significant part of it (OECD, 2021). In order to address this research gap, this paper will investigate how students make their career choices and what policy measures can support school graduates in terms of bringing them to high education satisfaction and work by specialization. Therefore, the survey will reflect the following questions: (1) How do school graduates in Russia make their educational direction and career choice? (2) What policy measures can assist school graduates to make a right career decision that will improve the level of education and job satisfaction?

Goal of the study – to formulate policy measures for educational regulators that can increase the level of high education satisfaction and compliance of the career path with obtained specialization to improve the educational costs effectiveness

Objectives:

- Analyze scientific studies about the students' career decision making process

- Analyze Russian educational system and main stakeholders and compare it with international practices
- Develop a survey questionnaire to understand the process of career decision-making of school graduates in Russia
- Conduct empirical research to investigate factors that influence career decision-making of youth and their satisfaction with chosen educational direction

Object of study: school graduates career decision making factors

Research results of this paper would be useful for policy makers and educational authorities for improving the process of school education. The study will identify what drives the career decision making of school graduates and what policy measures and changes in school education can support students in this process. Moreover, findings could help to increase the reactivity of education to changing circumstances and provide recommendations how the information flow between different stakeholders can be improved.

CHAPTER 1. THE ROLE OF EDUCATIONAL INSTITUTIONS IN STUDNETS CAREER DECISION-MAKING

1.1. Factors influencing students career decision making

1.1.1. Literature review of scientific articles

Almost every person in the world at least once in life encounter the challenge of making a career decision. School graduates have to opt the study program, which is based on the selection of the future career. The problem school graduates face is that the choice should match their interests, abilities, skills, and academic performance, while at the same time accommodate their parents' wishes and requirements (Kulcsár, Dobrean and Gati, 2020). Also, there are numerous of other factors as cultural and social background, the pillars of profession, personal intentions and others that could influence the choice (Reynolds and Constantine, 2007). The importance of such decisions is high both on personal and social level, therefore this topic should be closely investigated.

Numerous surveys were carried out regarding the career and study program decision-making. Some scientists were observing the choice of specialization, while others were focusing on the overall process of making career choice. Sharif, Ahmad and Sarwar (2019) investigated different factors influencing the career decision of students in Pakistan and the problem of specialization shortage. Authors stated that it is difficult for school students to choose a desired career, because they lack specialized education. It is implied that in order to succeed students should be great decision makers, while normally it is not the case. Students lack information about future professions and specializations, when at the same time the wrong choice of the study program leads to the job unsatisfaction (Sharif, Ahmad and Sarwar, 2019). Other group of authors were focusing mostly on the choice of the specific career as accounting, STEM (Science, Technology, Engineering and Mathematic), teaching, media, medicine, etc. Also, these studies were conducted in different countries. The interest to this topic is explained by the fact that countries encounter the lack of certain specialists, while investing quite high percent of budget money in education.

As an example, South Africa is ranked quite high among countries who invests significant amount of money in education and especially in STEM, because STEM specialists are one of the most demanding ones in the country. Despite this fact South Africa is ranked quite low in STEM performing and there is a shortage of STEM students and specialists in the country. The main question in the study was about the situation, events or individual impact that made students choose STEM as profession. Policy makers and educators in South Africa were

struggling to understand how to accommodate students in making more conscious career decision that matches students' personality, interests and expectations. The study revealed that for STEM students from South Africa interpersonal factors such as parents, educators and peers opinion have a high influence (Abe and Chikoko, 2020). Such results are quite useful for stakeholders as they can understand how to regulate the situation.

Another example is the study in Malaysia about the choice of accounting as future career. The purpose of the study was similar: to stimulate students to choose the accounting as future career, because there was a lack of such specialists in the country. It was revealed that for those students, who have chosen the accounting career, the most influential factor was the perception of benefits, especially prestige and social status. Interestingly, job satisfaction is not that important when compared to those who made different from accounting career choice. Also, it is important to mention that students with no accounting experience cannot really envision an accounting working environment, therefore the working environment factor appeared not significant (Khalid et al, 2021).

Similar research was conducted in Israel, analyzing the choice of English teaching as future career for Arabic women when entering college in the country. The goal of this study was to help educators to offer experiences of higher quality to make university graduates more enthusiastic, motivated, and qualified. As a result, it was revealed that factor that influence the choice of English teaching as the future career are abilities, intrinsic career value, experiences, and opportunity to shape future of children (Garra-Alloush, Chaleila and Watted, 2020). Based on findings educators can develop higher quality content and more relevant practice for future teachers as well as policymakers can provide more practice during the school years to acquire necessary experience.

One more study on career choice was conducted in Pakistan. The research analyzed factors influencing the choice of academic career of university students and the level of satisfaction of such choice. Authors also aimed to solve the problem of students, who faced the challenge of matching their profession decision with their interests, abilities, and skills (Arif, Iqbal, and Khalil, 2019).

Table 1. Factors influencing the choice of different careers among countries

Article	Methods used	Country	Key result
Akosah-Twumasi et al (2018)	Systematic review	various	Culture (collectivistic, individualistic) is a significant factor for career decision making
Abe and Chikoko (2020)	Hermeneutic phenomenological method	South Africa.	Family and career outcomes influence the STEM career choice
Sharif, Ahmad and Sarwar (2019)	Sample t-testand, ANoVA	Pakistan	Earning a reputable social status, income, making difference in society and father' pressure are significant factors for career decision making
Khalid et al (2021)	Descriptive statistics, correlation analysis and test of significant difference	Malaysia	Prestige, lifestyle, social status, future high earnings potential, possibility of career growth and promotion influence the choice of accounting as career
Garra-Alloush, Chaleila and Watted (2020)	Quantitative and qualitative analysis	Israel	Ability, intrinsic career value, fallback career, prior teaching and learning experiences, social influences, ability to shape future of children/adolescents influence the choice of English teacher as career
Iyer and Siddhartha (2021)	Regression analysis	India	Self-efficacy, family, gender, personal interest, passion influence the choice of media as career
Kobia-Acquah et al (2020)	Logistic regression	Ghana.	Interest in career field, potential good income, information of career opportunities influences the

			choice of optometry as future career
Arif, Iqbal, and Khalil (2019)	Regression	Pakistan	Social and peer group, academic support and self-efficacy influence the choice of the academic career in Pakistan
Seyedian and Shakurnia (2020)	Regression	Iran	Personal interest, fellowship, improving knowledge and the treatment modality, the need of community and serving people influence the choice of internal medicine (IT)

Source: completed by author

The table above provides the summary on conducted literature review. The column with key results contains factors that are indicated to be significant for the high education direction choice of school students in different countries. It is important to mention that some scientific studies were focused on the specific educational direction choice, while other were analyzing the factors that influence the career decision-making process overall.

1.1.2. Approaches to classification and grouping of factors

Scientists and authors have different approaches to group factors that influence the career choice. Factors, that influence the career choice of youth can be attributed to three social cognitive processes, according to the Social Cognitive Career Theory (SCCT) by Lent et al. (1994): self-efficacy beliefs, outcomes expectations and intentions. But all three groups have an impact of socio-economic, demographic, and cultural background. Carpenter and Foster (1977) elaborated the SCCT framework and grouped career-influencing factors into three categories: intrinsic, extrinsic, and interpersonal factors. The first group of intrinsic factors include students' interest in certain profession, self-efficacy, personal experiences, hobbies, satisfying employment and other personal traits. Extrinsic factors are formed of prestige of profession, financial benefits, job security and accessibility, status. The third category of interpersonal factors is referred to opinions and influence of family, educators, peers, and other people from student's environment and social responsibilities.

Another type of classification is dividing factors into three groups: interpersonal, intrapersonal, and career outcomes expectancy. This approach was used when analyzing STEM career choice (Abe and Chikoko, 2020). The logic is quite similar to the previous classification. Intrapersonal factors represent such factors as career interest, personality, self-efficacy, and other personal traits. Interpersonal factors determine the influence of family, teacher, educators, and peers. The third group of outcome expectancy factors include different financial matters, career opportunities and prospects.

In the study of factors which influence accounting career choice authors implied groups of perceived benefits and working environment, while referring the rest factors to the group of “other influences”. First group of perceived benefits consisted of rewards, job availability, security, satisfaction, prestige, social status, and promotion. Interestingly, the authors stated that job satisfaction for accounting profession normally considered as insignificant as compared to other career choices. The second group of working environment defined factors which are related to comfort and safety of the working place. But working environment factors were subsequently rejected. It was explained by the fact that students with no accounting experience are not able to envision the protentional working environment and experience the importance of these factors, therefore in the discussed research this group of factors appeared to be insignificant (Khalid et al, 2021). This is idea occurs in other scientific studies too as many authors argue that factors regarding benefits of future career or job expectations or career outcomes value a lot, but it is still difficult for students to understand them (Sharif, Ahmad and Sarwar, 2019).

Another approach to grouping was used in the study of academic career decision-making by Arif, Iqbal, and Khalil (2019), where authors divided factors into two main groups of external and personal agency (contextual) factors. External factors consisted of social, economic, and family factors, while the second group contained academic support provided by university and related experiential learning. Moreover, it was mentioned that in accordance with general social cognitive theory the external factors themselves have an influence on the personal agency (contextual) factors. Although this logic is quite understandable, while the family can obviously affect the interests of the child, it has an impact on results.

It could be noticed that almost all studies used the grouping approach such as dividing factors into internal and external, or extrinsic and intrinsic (Sharif, Ahmad and Sarwar, 2019), and having the third group of interpersonal factors.

Moreover, in some surveys there were individually stated factors such as “making difference in society” (Sharif, Ahmad and Sarwar, 2019), “shaping future of

children/adolescents”, “work with children/adolescents” and “altruistic motivation” (Garra-Alloush, Chaleila and Watted, 2020), “information of career opportunities” (Kobia-Acquah et al, 2020), “the need of community and serving people” (Seyedian and Shakurnia, 2020), they can be also referred to external or internal factors.

Lastly, all studies considered socio-demographic factors such as gender, age, education, family income, employment, etc. The only one factor that deserves closer attention for research purposes is the cultural factor. The table below represents the summary of different types of factors classification and indices academic papers, where the mentioned classification was implied.

Table 2. Types of factors’ classifications

Article	Intrinsic	Extrinsic	Interpersonal	Making a difference	Working environment	Socio-demographic
Akosah-Twumasi et al (2018)	+	+	+			+
Abe and Chikoko (2020)	+	+	+			+
Sharif, Ahmad and Sarwar, (2019)	+	+	+			+
Khalid et al (2021)		+	+		+	+
Garra-Alloush, Chaleila and Watted (2020)	+	+		+		+
Iyer and Siddhartha (2021)	+	+	+			+
Kobia-Acquah et al (2020)	+	+	+			+
Arif, Iqbal, and Khalil (2019)	+	+	+			+
Seyedian and Shakurnia (2020)	+	+	+	+		+

Source: completed by author

The table above summarizes the classification approaches to factors, that influence the educational direction choice. Although the same groups of factors were labelled differently in analyzed scientific studies, this paper would use the following naming: intrinsic, extrinsic, interpersonal, making a difference, working environment and socio-demographic. The table identifies the frequency of using groups of factors in different studies. As can be seen from the table, intrinsic, extrinsic, interpersonal, and socio-demographic groups of factors have appeared in scientific articles more often. Therefore, these groups will be used in the further research.

1.1.3. Cultural differences as factor influencing the career choice

It was identified that the cultural setting plays an important role in the career-decision making process of students (Akosah-Twumasi et al ,2018). To be more specific, the cultural values make one group more prevailing in comparison to others. Based on cultural dimension as individualism, collectivism, and bicultural cultures, there were factors that are domination in each group. Individualism refers to the culture, which are independence oriented, self-reliance, with more freedom and individual autonomy like western countries such as EU, USA, UK, Australia. On the other hand, collectivist cultures are described as countries with high level of societal interdependence, communal benefits such as Asian and African countries. Lastly, bicultural youth are those who migrated from their heritage culture or have family's traditions other than ones in residence country.

The results of the Akosah-Twumasi et al systematic review showed that the strongest influence on career-decision of youth from collectivist cultures were the interpersonal factors such as parental support, family cohesion, peers' opinion, educators, and school. Also, students from collectivist cultures were affected by extrinsic factors as prestige of profession and status. On the other side, students from individualistic countries were considering both intrinsic and extrinsic factors, while making a career decision. The main impact was from intrinsic motivation, personal interests, and self-efficacy as well as high salary and job security. It was shown that in individualistic countries the level of interpersonal affect is quite low. All mentioned above, students from individualistic countries tend to make decisions based on their own interests and opinions, choose career that brings them benefits and happiness, while youth from collectivistic cultures base their decision on family's benefits and opinion.

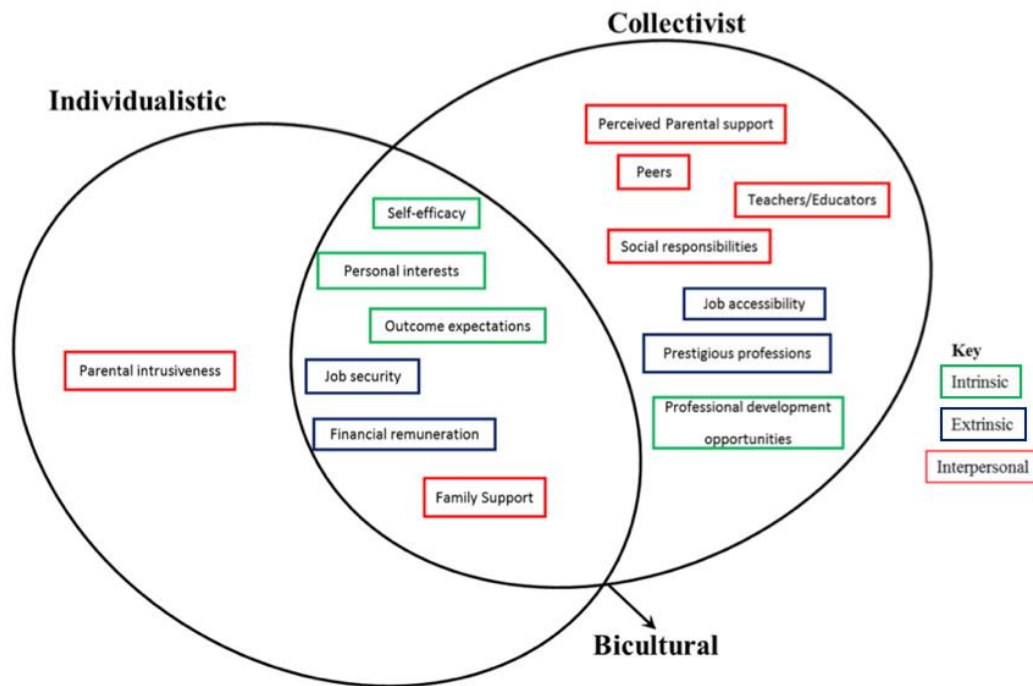


Figure 1. Career influencing factors and their distribution in cultural setting

Source: Akosah-Twumasi et al, 2018

The Figure 1. identifies career influencing factors and their distribution in cultural setting. It can be seen that interpersonal factors are more relevant for collectivist cultures, while intrinsic factors play an important role in career choice in bicultural countries. As Russia is a collectivist country, these results would be considered in the further research (Mamontov, Kozhevnikova, Radyukova, 2014).

Continuing the discussion about interpersonal factors, it was revealed that family was the dominant factor in making a STEM career choice in South Africa (Abe and Chikoko, 2020). But there were also research results that teachers are the most influential factor for career choice for students from South Africa (Shumba and Naong, 2012). In addition, father influenced considered the most important for management career choice of Indian students (Allen and Daly, 2007). This fact is supported by another study too, which states that father has a high importance on career decision in eastern countries (Agawala, 2008). Nevertheless, in Pakistan social and peers influence is stronger than family factor (Arif, Iqbal, and Khalil, 2019). The most interesting result of interpersonal factor influence was shown by the media career choice study in India. Although India is the eastern country, the family factor has a negative influence on students' choice of media as future profession. In other words, students tend to make such career decision against the wishes of parents. Therefore, the media career in India is considered

as “rebel-choice”. But for families with high income career in media is perceived as glamorous profession (Iyer and Siddhartha, 2021). Such results, considering the lack of media specialists and the necessity of them, helps educators and policy makers in developing the strategy that can change the situation.

Moreover, traditions and the level of country development also influence the choice of the future career. As an example, in some countries the profession of tutor or educator is associated with high socio-economic status (Manuel & Hughes, 2006). This changes the perception of the career and factors, that drives the choice. Some studies revealed that in developed countries such as Canada, Australia, United Kingdom, and some countries from Europe the teaching career choice is related to interests, contribution to society, fulfilling intellectual potential, while for less developed countries such Africa it is associated with extrinsic factors such as salary, future status, and job security. Also, intrinsic and altruistic motivation is more typical for developed countries (Garra-Alloush, Chaleila and Watted, 2020). Inarguably, career choice is influenced by perception of certain profession, which is formed by traditions, socio-economic factors, culture, stereotypes, and history. Therefore, while choosing the factors for further analysis all circumstances and peculiarities should be taken into account.

1.1.4. Results of factors’ analysis

Considering the all information above, the further research will analyze the influence of the following groups of factors: intrinsic, extrinsic, interpersonal and socio-demographic. Out of all factors that were earlier discussed, for further research purposes were selected factors, which are represented in the table below.

Table 3. Selected factors, that influence the choice of the future career

Article	Factors
Socio-demographic factors	<ul style="list-style-type: none"> • Gender • Level of income • Number of siblings • Level of mother’s education • Level of father’s education
Interpersonal factors	<ul style="list-style-type: none"> • Parents’ influence • Family’s traditions • Peers’ influence • Teachers’ and educators’ influence
Intrinsic factors	<ul style="list-style-type: none"> • Interests in the chosen area

	<ul style="list-style-type: none"> • Abilities in the chosen area • Personal career goal • Personal development
Extrinsic factors	<ul style="list-style-type: none"> • Salary opportunities • Future status • Job security • Job availability • Information on career opportunities

Source: completed by author

It can be noticed that each group include from four to five factors. The main criteria of selection were the relevance of factors for Russia and how frequently factors had appeared in scientific papers. It was mentioned before, that as Russia is a collectivist country, the special attention will be paid to the interpersonal group of factors, which include parents' influence, family traditions, peers' influence, and educators' influence. It is considered that interpersonal factors play an important role in career choice too.

1.2. Comparative analysis of Russian and international educational systems

Educational system significantly varies across countries. Depending on the country there are different characteristics of starting and ending age for students in compulsory education, duration of school year, number and types of educational levels, set of subjects, presence of electives and specializations, type and number of exams, availability of free education, source of funding and so on. In order to better understand the Russian and international systems of education, the comparative analysis is conducted.

Based on OECD data, the standard approach to school educational levels consist of 3 main stages: primary education, lower secondary education, and upper secondary education (OECD Indicators, 2021). Compulsory education in 65% of observed countries (OECD members and partners) consist of 2 levels of education, while for 35% it is required to obtain all three levels of education. Starting from September 2019, the compulsory education can start not earlier that from the age of 3, while in most of the countries the typical starting age of compulsory education varies from 5-7 years. The typical ending age of compulsory education is between 15-18 in most of the cases. For 3 main levels of school education the age parameters across analyzed countries are the following (OECD, 2021):

- Primary education

- Typical starting age: 5-7 years old
- Typical ending age: 9-12 years old
- Lower secondary education
 - Typical starting age: 10-13 years old
 - Typical ending age: 13-15 years old
- Upper secondary education
 - Typical starting age: 14-16 years old
 - Typical ending age: 16-19 years old

The age of the student is indicated at the moment when school starts or ends. It can be concluded that overall age of school students is normally between 5-19 years. Russian school educational system is also characterized by three levels of education: primary, lower secondary and upper secondary. Primary school is typically for 7-10 years old students, lower secondary is for 11-15 years old and upper secondary is for 16-17 years old.

Number of direct instruction hours in school during the compulsory education is different across countries within 5000-11000 hours during primary and lower secondary education. The smallest number of hours is devoted to Poland, where children spend in total 5334 hours in class during the primary and lower secondary education. The most of time for the same education spend Australian students – 11060 hours in total. In Russia the same indicator is equal to approximately 6000 hours, while the OECD average is a bit more than 8000 hours for both educational stages. Also, among observed countries 807 hours per year are devoted to primary education, while about 923 hours to lower secondary. The graph below shows the detailed international statistics on the number of compulsory hours of instructions in primary and lower secondary education across countries.

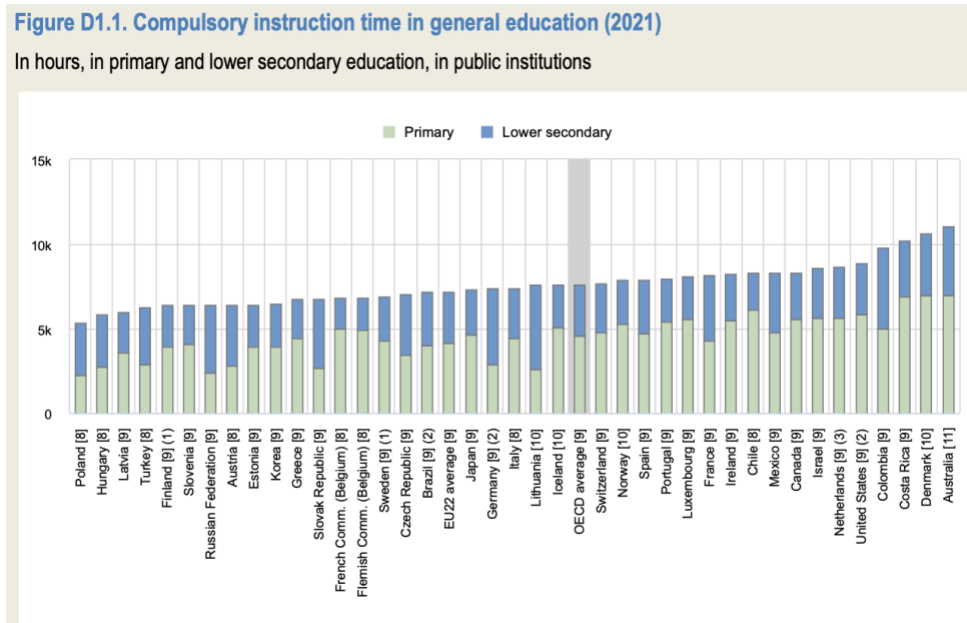


Figure 2. Compulsory instruction time in general education across countries, 2021

Source: OECD (2021)

The duration of school year and number of school breaks also differs across countries. Normally during the year school students have from 2 to 5 breaks with the total amount from 10-17 weeks per year. Interestingly, school children in Russia have the longest break during summer holidays, which lasts 13 weeks.

Distribution of class hours per subject also differs across countries. Main components in primary and lower secondary education are reading writing and literature; mathematics; natural sciences; second and other languages; other compulsory curriculum; compulsory flexible curriculum. OECD average allocation of compulsory school hours for literacy and numeracy is 42% in primary school, while for some countries, including Russia, this percentage exceeds 50% of overall compulsory instruction hours. The graph below provides the information on distribution of instructional hours among countries based on the subject.

Figure D1.3. Instruction time per subject in primary education (2021)

In percentage of total compulsory instruction time, in public institutions

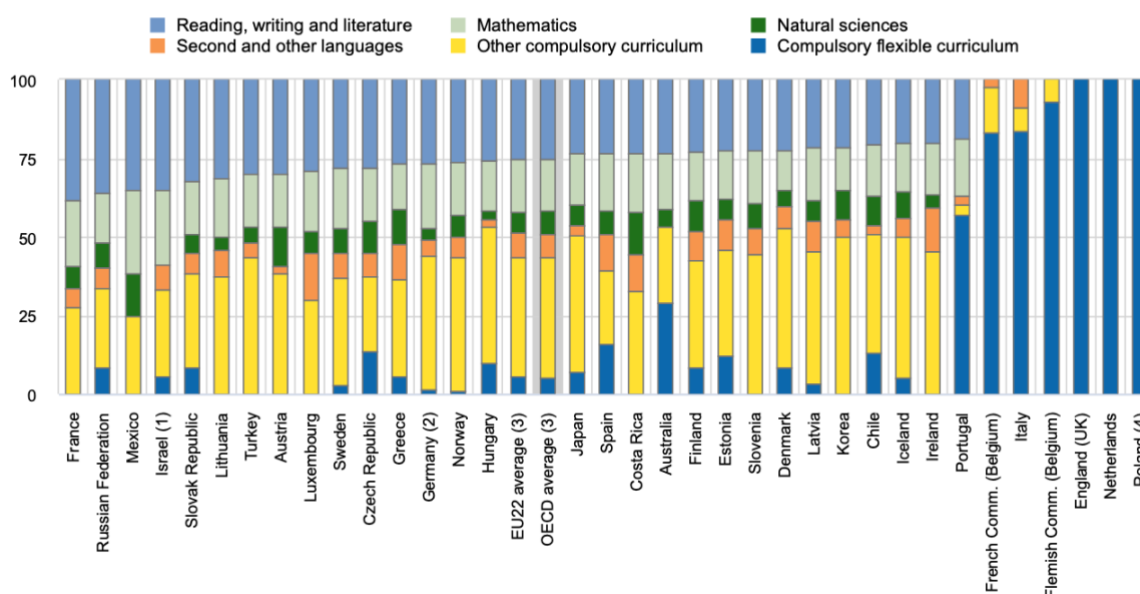


Figure 3. Instruction time per subject in primary education across countries, 2021

Source: OECD (2021)

During the lower secondary education there is a slight shift to more specialized subjects, but still the percentage of time devoted to reading, writing, literature and mathematics composes about 27%. There is also a trend among countries for lower secondary educational level of decreased number of school hours in art and physical exercises in comparison to primary level. In addition, instruction hours allocation at lower secondary education level is less consistent across observed countries than at primary level. In other words, there are more school curriculum variations and educational system peculiarities in different countries. Also, it can be noticed from the graph, that in Russia more hours in lower secondary education are spent on literacy (reading, writing and literature) and natural sciences in comparison to OECD average, while the less time is devoted for second and other languages and compulsory flexible curriculum hours.

Figure D1.4. Instruction time per subject in general lower secondary education (2021)

In percentage of total compulsory instruction time, in public institutions

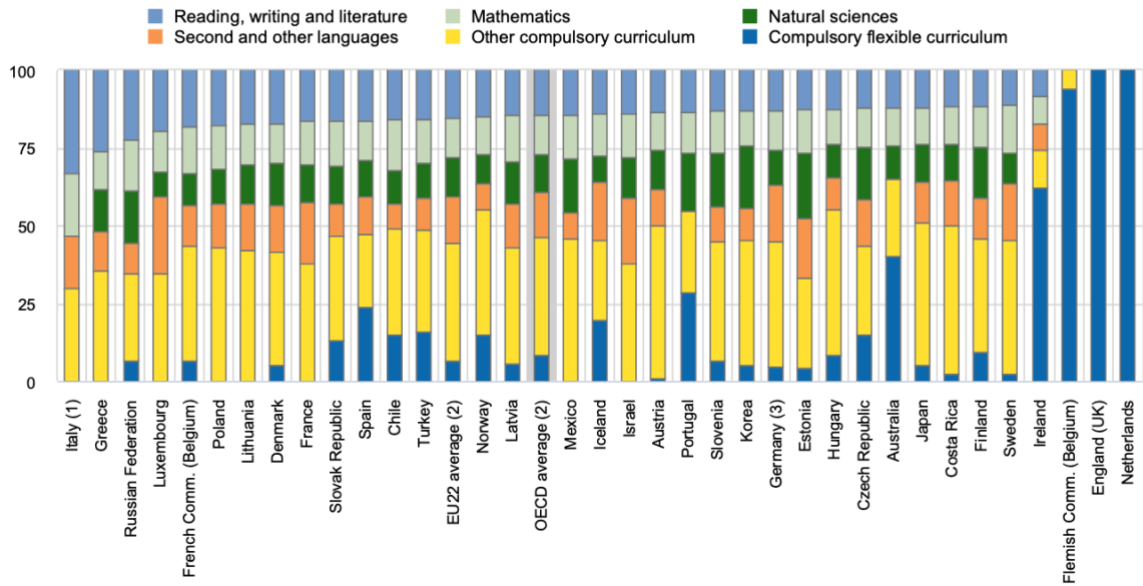


Figure 4. Instruction time per subject in secondary education across countries, 2021

Source: OECD (2021)

It can be seen that the structure of school education varies across countries. First of all, the presented data shows, that in Russia the number of years spent in school is lower than in most of observed countries. Secondly, Russia has fewer compulsory instructions hours in primary and lower secondary education that OECD average. On the other hand, Russia has the longest summer holidays in school, which lasts 13 weeks. In addition, regarding the structure of curriculum, more time is dedicated to reading, writing and literature, while the share of flexible curriculum hours is relatively low. This characterizes the Russian school education as more formal and less specialized. For the further research it is important to understand the specifics of the educational structure in Russia and its comparison with international practices. One of the significant outcomes of this analysis is that school education in Russia does not dedicate much time for the specialization as it is done in other OECD countries. Also, it can be noticed that there is a capacity of adding additional specialized courses by increasing the number of instructional hours.

1.3. Comparative analysis of statistics on educational expenditures in Russia and world

1.3.1. Educational expenditures: Russia and world

Nowadays there is a constantly growing demand for education than ever before. More people are receiving education from different providers, starting from formal education in schools, colleges and universities to non-formal education such as retraining courses, massive open online courses, and ed-tach platforms. In current economic situation countries find it difficult to support the increasing demand throughout public funds. There are many discussions who should financially support the educational system and how costs should be distributed among stakeholders. At the moment budget money represent the main share in educational investments, while private funds still play a minor role. Moreover, private funds are mainly constituted by household money, raising discussions about equity problems worldwide. A lot of instruments to eliminate the problem such as students' loans, grants and talent programs often are not working correctly and are not widely represented in most of the countries. Nevertheless, huge money around the world is invested in educational system by different sources. Graph below represents the total expenditures on educational institutions at different levels (non-tertiary and tertiary education) as percentage of GDP across countries. Tertiary education is the education, which is provided after school such as college, bachelor's degree, master's degree and so on. Non-tertiary education refers to school education: primary and secondary (Asplund, Adbelkarim and Skalli, 2008). The public expenditure on education varies from a bit more than 3,5% of GDP in Ireland to more than 6,5% in Norway.

Figure C2.1. Total expenditure on educational institutions as a percentage of GDP (2018)

From public, private and international sources, by level of education, in per cent

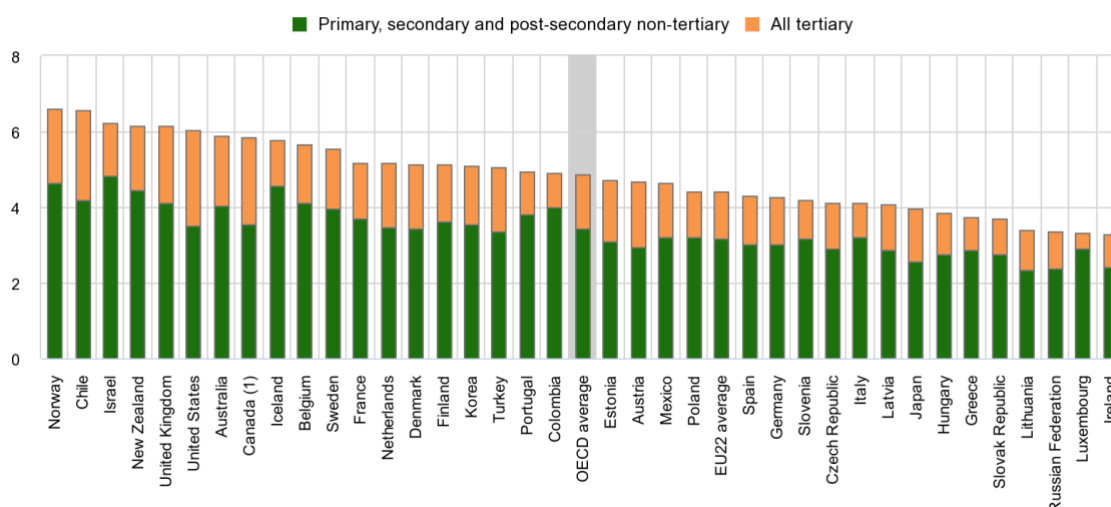


Figure 5. Total expenditures on educational institutions as percentage of GDP (2018)

Source: OECD Education Statistics, 2021

Regarding the government financial support at different levels of education, the percentage is bigger for non-tertiary education, meaning that after school graduation education should be covered on private sources in many countries (OECD, 2021).

International statistics from 2018 year shows that from 72%-100% of non-tertiary level of education expenditures are covered by public funds. Private expenditures at primary and lower secondary education levels are only around 9% and at upper secondary level are around 14% across countries. Such huge government support is explained by the fact that non-tertiary education is compulsory in most of the countries to maintain the educational level of citizens and ensure child employment, while parents are at work. As presented, Russia is among countries, which non-tertiary education is covered by public funding in more than 90% of cases.

Figure C3.2a. Distribution of public and private expenditure on educational institutions (2018)

Primary, secondary and post-secondary non-tertiary education, after transfers, in per cent

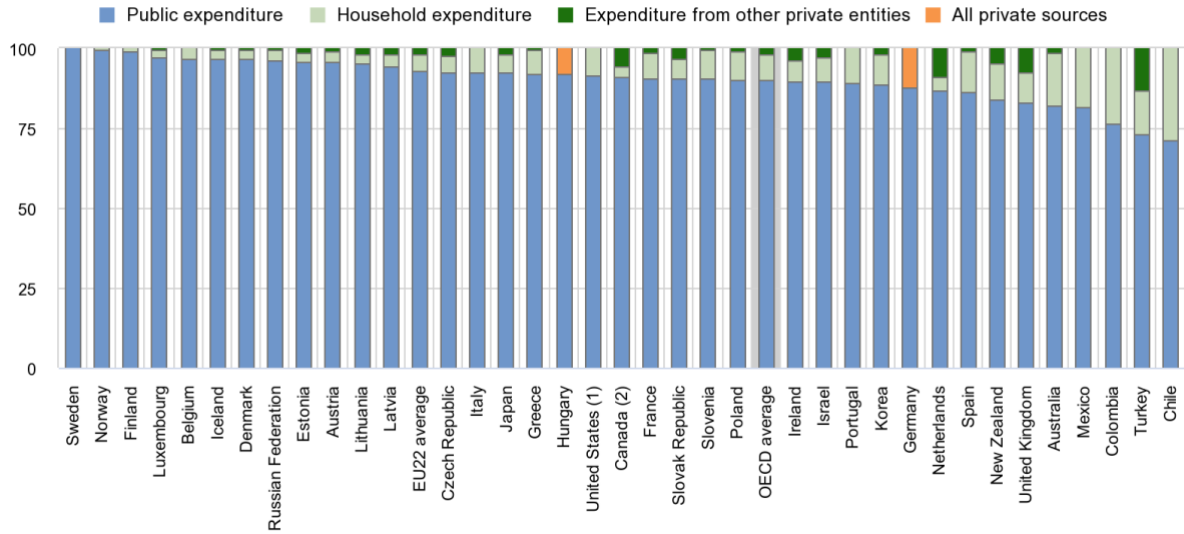


Figure 6. Allocation of private and public funds at non-tertiary level of education

Source: OECD Education Statistics, 2021

Regarding the tertiary level of education funding, the situation shifts more to private investments. The statistics varies across countries and depends on the cost of high education. In some countries the percent of private funding reaches 55% of total spending on tertiary education. The question of budget allocation among tertiary level of education is still quite controversial. On the one hand the overall policy of high education should be controlled by government, making it responsible for educational trends, ensuring the balance of supply and demand, aligning educational policy with social and economic needs. When high education is covered privately or via the public individual support (grants, loans), the government should adjust the policy and focus mostly on equality maintenance and information transparency for making career choices. The graph below represents the allocation of private and public funds at tertiary level of education. Shown data represents that for countries such as Canada, United States, Australia, Japan, and United Kingdom the tertiary education is financed mostly by non-government sources, while distribution of public and private expenditures in Russia is close to the OECD average.

Figure C3.2b. Distribution of public and private expenditure on educational institutions (2018)

Tertiary education, after transfers, in per cent

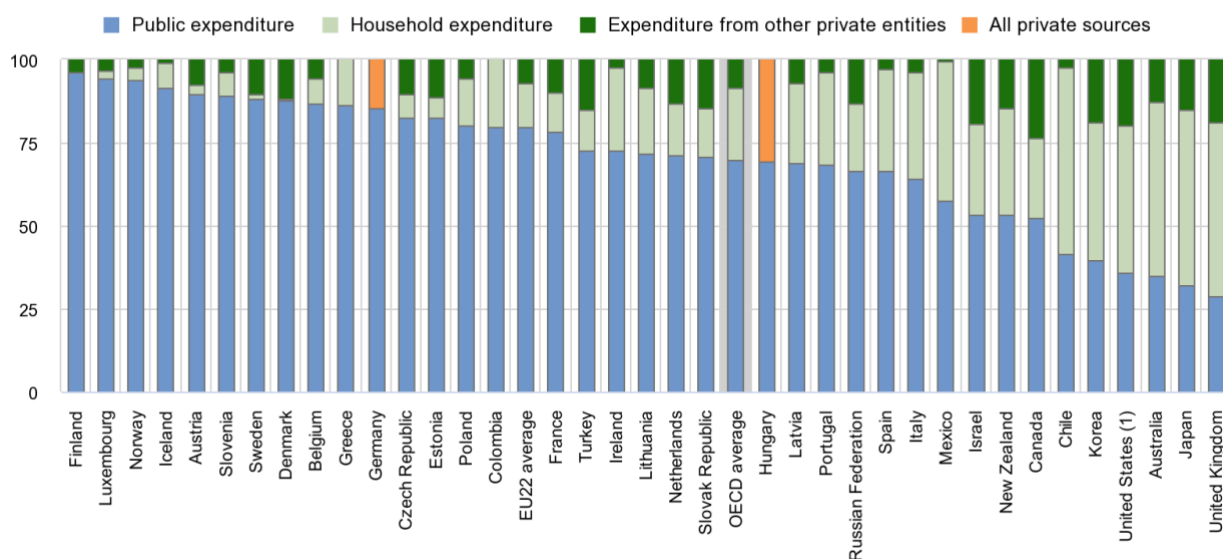


Figure 7. Allocation of private and public funds at tertiary level of education

Source: OECD Education Statistics, 2021

The data presented above shows the relative measure of expenditures from different sources of funding in different levels of education. To better understand the context, the absolute numbers should be analyzed too. Based on the available international statistics of 2018, the OECD average spending per student for primary to tertiary education is 11 680 USD, while this indicator for Russia is only 6 430 USD. The highest spending is devoted to Luxemburg (24 973 USD), United States (18 593) and Norway (17 949 USD), while lowest are presented by Columbia (3 145 USD) and Mexico (3 619 USD).

In terms of upper secondary education, Russia also has quite low spending in the amount of 5 734 USD per student, exceeding spending only of Columbia (3 334 USD) and Mexico (3 454 USD). The OECD average for this parameter is 11 590 USD, while the leaders are Luxemburg and Switzerland with the spending of 24 933 USD and 18 932 USD per student relatively.

As per short-cycle and long cycle tertiary education, spending per student are 5 734 USD and 10 599 USD. OECD average of these indicators are 12 671 USD and 18 373 USD per student, what places Russia at the end of the list regarding these indicators.

To sum up, the public expenditures on education are on average about 5% of the country's GDP, while in Russia it is a bit more than 3%. The non-tertiary education is mostly finance by

public funding, covering on average about 80% of expenses, while for Russia the percentage exceeds 90%. Government support for tertiary education is lower, on average about 70% are finance on public funds across OECD countries, and a bit less than 70% in Russia. In absolute values the government spending on education per students at different levels of education is significantly lower than in other OECD countries.

1.3.2. Work by specialization: Russia and world

In order to enhance socio-economic parameters of the country and ensure the social mobility and equality among citizens it is necessary to provide the educational opportunities for all groups of people in the country. Education plays a crucial role in the country development in many terms: technological development, human capital, standard of living, level of innovation and scientific findings, level of happiness and so on.

Moreover, education should be up-to date and relevant for the individual in terms of personal factors. It is implied that especially high education should assist the future employment and be relevant to it. Government, from its side, should provide the necessary infrastructure and policy to support citizens to receive the required education. The world trend is that during the last decades the percent of people with high education is increasing, but it does not necessary implies that the obtained education helped citizens to get employed.

Based on OECD data (2021), on average about 47,4% of 25–34-year-olds and 30,3% of 55–64-year-olds have the tertiary education, which means that they have completed the highest level of education, including university, college, and vocational courses. For Russia the percentage is higher: 62,1% of 25–34-year-olds and 50,3% of 55–64-year-olds (OECD, 2021). The table below represents the detailed statistics on the percentage of people with high education by two age groups among countries. It can be seen from the graph that percentage of people who have high education in Russia is significantly higher than across other countries.

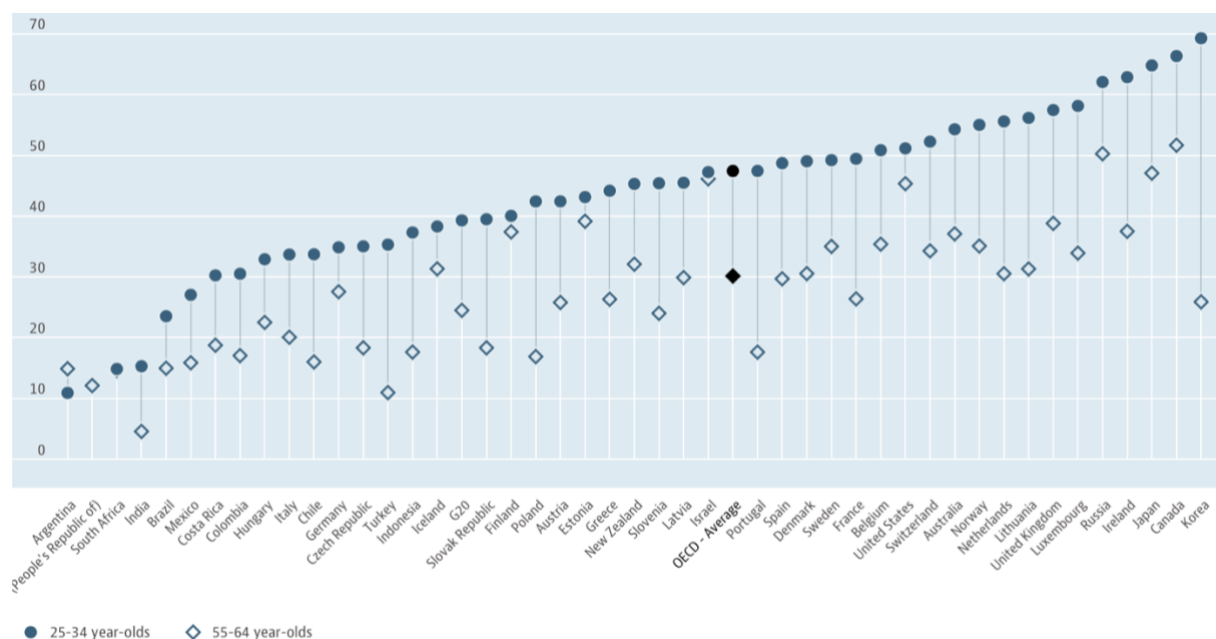


Figure 8. Percentage of people with high education among countries

Source: Education at a glance: Educational attainment and labour-force status

The level of education influences the chances of people to be employed. The higher level of education person has the higher are the chances to be employed. The table below represents the statistics of the employment rates in accordance with the level of education (below upper secondary, upper secondary non-tertiary, or tertiary) by countries in 2021 (OECD, Employment by educational level, 2021).

Table 4. Summary of the employment rate based on obtained education

Country	below upper secondary	upper secondary non-tertiary	tertiary
Russia	54%	73,5%	83,2%
OECD average	58%	75,7%	85%
Highest	72% (Indonesia)	84% (Sweden)	90,7% (Hungary)
Lowest	29,8% (Slovak Republic)	52,6 (South Africa)	62,1% (India)

Source: compiled by the author

It can be noticed that the employment rate according to every level of education in Russia is similar to the OECD average rate, which means that people with the certain degree have approximately the same chances to be employed as it considered on average in OECD

countries. Nevertheless, there is another question: whether the profession of people corresponds to their education?

International Labor Organization states that only half of employees worldwide have a job that matches their obtained education (International Labor Organization). On the other hand, employers and policy makers often claim that there is a lack of qualified employees on the market. This raises the problem of inconsistency of educational system with labor market. Interestingly, the percentage varies among countries based on the level of development. For developed countries the percent of employees, who work by profession is about 60%. In upper-middle and lower-middle income countries the number differ from 43-52 percent, while low-income countries have only about 25% of employees whose work matches their education.

In Russia as of 2019 data provided by WCIOM, 51% of working population work by their specialization, while 47% are employed not by their obtained education. Also, 58% of people who work by their specialization have high education. Also, it was shown that 28% of Russians have never worked by their specialization. For people with secondary education the number is higher - 36%. About 48% have worked long time (more than 5 years) by specialization, while 16% of respondents have been employed by specialization from 1 to 5 years. Also, 6% of people spent less than 1 year on working by obtained education. The pie chart below summarizes the mentioned above:

Work by specialization (Russia), 2019

- Have never worked by their specialization
- Less than 1 year work by specialization
- 1-5 years work by specialization
- Long time work (more than 5 years) by specialization

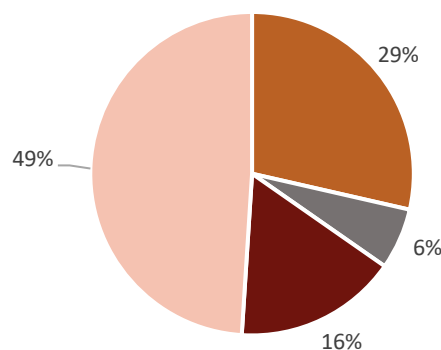


Figure 9. Summary of the employment rate based on obtained education

Source: completed by the author

In addition, 37% of respondents have done retraining courses, 45% of them have high education and 24% have secondary education. Also, 33% of respondents have not done retraining courses, but studied on their own. Although 29% of respondents think that they haven't obtained any useful skills during retraining courses, the percent of people involved in requalification courses is quite high. This means that their previous education had not fully satisfied their needs. Main reasons why people choose not to work by the obtained education are the following:

- Can't be recruited by specialization or absence of job offers (30%)
- Higher salary in other occupation (24%)
- Found themselves in other occupation (20%)

To sum up, it can be noticed that the public investments at all levels of education represent the significant part among all financing courses. Moreover, the public funding is mostly present at the level of non-tertiary education (primary, secondary and post-secondary education). Additionally, the statistics shows that the financial support of government is especially relevant for Russia, where also high education is financed from public funds. Additionally, the data showed that the level of education influences the chances to be employed. Lastly, the observation of survey on work by specialization trend in Russia revealed that there is a significant gap in complicate of obtained education with future profession, although the share of people having high education in Russia is notably higher that in other countries, which brings the question of the effectiveness of public money allocation.

1.4. The role of school education in career development: international practices

The tendency in the modern economy nowadays is that emerging jobs over the past 50 years do require the high education, while the proportion of positions where only secondary education is needed is decreasing significantly. This is explained by the fact that the most growing industries are informational technology (IT), construction, healthcare, finance, government services and other where highly qualified employees are needed (The Bureau of Labor Statistics). Even the industries, that previously did not require specialists with high education, started focusing more on candidates with postsecondary education. As it was mentioned earlier in the paper, although the percentage of people with high education in Russia is a bit more than 60%, being higher that OECD average, the share of people working by

specialization is quite low. If previously, especially in Russia, the high education diploma was just for record for many employers, now the situation is shifting, and actual competences are required. But still, based on WCIOM survey in 2019, more than fifth of respondents stated that they found themselves in a completely different from obtained education field, while more than a quarter of respondents were never going to work in their specialty. This divergence in global trends and people's mindsets could lead to negative consequences both on individual and country's levels. At the personal level such situation can result in further disappointment, unemployment, expenses on retraining courses, time loss and in many more intangible costs. At the country's level it leads to the lack of qualified employees, which in turn affects all other areas: from technological development and innovation to equality, social mobility, and standard of living.

The place where change can be made is the school education, because during the school children make their decisions regarding the future career and high education direction. Moreover, school education in Russia is mostly regulated by government in comparison to international practices. According to OECD data the percentage of private schools in developed countries exceeds 10%, while in Russia it is less than 2%. Although the share of public schools in Russia is still prevailing, the number of private schools is increasing dramatically over the last decades (HSE, National Research University, 2019). This trend is explained by the fact that public schools do not align with global changes and neglect the demands of citizens. This process is natural as when there are imperfections in government services the private sector appears. Although there are many advantages of the private sector presence, government is still accountable for the whole educational system, especially at the school education level. When the education level in public schools do not keep up with those in private, the question of equality arises. As the government purpose is to provide accessible high-quality education to everyone, this paper is focused on the formulation of policies for school education, which could positively affect the educational system overall.

In addition, with the global impact of COVID-19 many schools faced the problem that they are not easily adopting to the new circumstances, having the lack of both flexibility and technology. The remote learning and educational courses are increasing their popularity and providing more updated content, relevant for future professions. Many international public authorities around the world imply different practices on how the public-school education can keep up with times. As stated by ICSEI (International Congress for School Effectiveness and Improvement), government should start collecting and analyzing data of different kinds of available information in order to bring improvements to school educational system. Data

should include not only the formal assessments and students' results, but also the classroom observations, students' opinions, teachers' feedback, studies on graduates. In addition, ICSEI encourages school authorities to focus more on equity, such as adapting education to needs of children, rather than on equality such as providing the same opportunities for all students. In order to do so policy makers should first collect all available information and identify students' needs for making data-informed decisions.

Another international practice is to build bridges and collaborate with different stakeholders. The school education cannot exist in isolation from universities, after school clubs, online education providers and labor market. Stakeholders at different levels of the system should share their knowledge and experience. In some countries online courses could be counted as school credits, bringing the significant change to school system (Ulewicz, 2017).

One of the examples of educational authorities applying the new approach to school learning is Montessori Schools. They are not following the traditional structure of school education but developing the innovative and creative environment for students. This allows students to obtain 21st century skills rather than formal academic knowledge.

One more example of progressive policies is the CTE (career and technology education) programs that provide the technological training and opportunity to experience workplace environment for school students. This program is widely used by US schools, which are adapting their school programs to this model. Currently about 12,5 million high school students are studying under this program. Moreover, this is program often provided jointly with local companies and businesses, which give school students the real-world professional experience (Partelow et al, 2018). Such programs not only give school students the opportunity to explore different professions, but also establish the communication flow between schools and labor market.

To sum up, as the world is rapidly changing and new circumstances are emerging, the educational system should be adapting too. The school education has the highest importance, because it has the biggest impact on the future generation. During the school students make their career decisions, which influence their future life. Therefore, it is important to align the school educational system with the modern trends. This should be done by Ministry of Education of Russian Federation as the unified policy measures at the national level are required. This would improve the effectiveness of school education in the country by providing up to date approach, which considers the students' needs in preparation for the future profession. This would enable school students to make more informed and conscious career choice.

In conclusion, this chapter provided the analysis on Russian and international educational systems, identified the global employability trends, and revealed factors, that influence the career decision process of school children. It was identified that school students' career decision could be based on different factors depending on the country characteristics and educational direction. Based on the analysis, it was decided to group factors in the following way: extrinsic, intrinsic, interpersonal and socio-demographic.

The comparative analysis of the government educational expenditures revealed that Russia dedicates lower percentage of country's GDP (3%), than other observed countries as the OECD average is about 5%. On the other hand, more than 90% of school education is covered by public funds, while OECD countries cover on average only 80%. Also, the absolute value of money spend per student in Russia is singularly lower than OECD average. This means that there are less investments in educational system in Russia than in other developed countries.

Based on the international statistics, Russia has the highest percentage of people with high education. Nevertheless, the percentage of people working by obtained education composes less than 50%, while for developed countries this figure is more than 60%. This arises the question of school and university educational effectiveness. Based on the comparison analysis of school educational systems, Russia dedicated less hours to compulsory instruction hours, especially to flexible curriculum. Also, most of the schools in Russia are public, although the number of private schools is increasing in the recent years. Public schools in Russia rarely provide specialization and professional orientation courses, which differs from international practices, where high school specialization is normally mandatory. Also, best international practices widely use different approaches and adapt the system to prepare school students to the future profession, which is not the case in Russia. All in all, having the problem of compliance of obtained education with future profession and the incongruity of school educational system with modern trends, the government incentives should be introduced. As the main focus of research is on school education, the next chapter will be dedicated to factors that influence the school students' career choice and how they can be used in order to improve the educational system.

CHAPTER 2. EMPIRICAL STUDY OF THE SCHOOL EDUCATION ON THE CAREER DECISION MAKING

2.1. Description of the research methods, collected data and sample

As mentioned above the main goal of the study is to formulate policy measures for educational regulators that can increase the level of high education satisfaction and compliance of the career path with obtained specialization in order to improve the educational costs effectiveness.

First, to achieve the research goal it was necessary to understand how people, who obtained high education, perceive the choice of educational direction and university for bachelor and master programs. Secondly, to analyze the compliance of received education with the chosen career and how it is influenced by education perception. Next step is to investigate factors that influenced the career choice of school graduates, who are satisfied with career choice and work by profession. Finally, based on obtained result, propose a set of police measures to increase the level of high education satisfaction and percentage of people work by their specialization in order to strengthen school educational system and optimize the public and private investments in education.

To collect the data and identify factors influencing the choice of the direction of study and profession, the questionnaire was developed. The poll was distributed among university graduates and current university students from 1st of March 2022 till 27th of April 2022 via Google Forms. The poll was published on Vkontakte, Instagram and Telegram platforms in city, university, and additional education related groups.

The sample consisted of 240 respondents, however only 211 of respondents have entered university, therefore only these people were an object for analysis. Out of all respondents 43% were university graduates, while 45% were current university students. The structure of the sample is presented below:

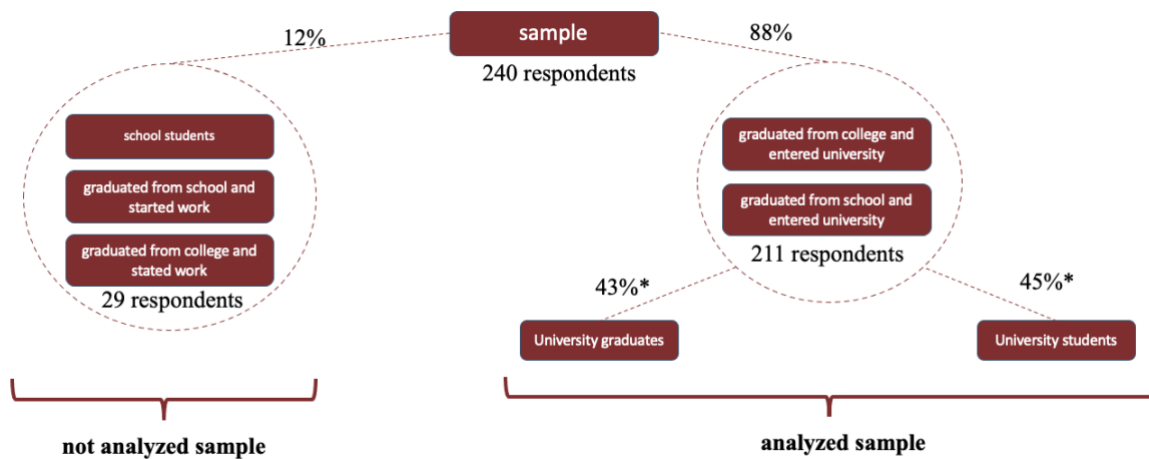


Figure 10. Structure of the sample

Source: compiled by the author

The survey had an introduction regarding the aim of the study, usage of results, and approximate time for completion. The questionnaire consisted of 45 questions, however each respondent had to answer from 7-27 questions depending on the previous answers. The questionnaire was programmed in a way that answers to previous questions influenced the next question. For example, respondents who mentioned that they did not enter university did not receive questions on university choice satisfaction, while those who mentioned that they completed both bachelor and master programs were asked about choice satisfaction of both degrees. Approximately, the maximum time for passing the questionnaire was not longer than 7-10 minutes.

The questionnaire consisted of 5 main blocks:

1. Socio-economic questions

This part contained general questions regarding country and city of birth, age, gender, number of older and younger siblings, income, education level of mother and father

2. Level of education-related questions

The questions in these blocks were about level of education: whether respondents have obtained or not high education, whether they are university graduates or current students, their university of graduation, where they finished school and university.

3. Satisfaction of education-related questions

- Whether the choice of education direction in bachelor or/and master was right

- Whether the choice of education direction in bachelor or/and master met respondent's expectations
- Whether the university choice for bachelor or/and master was right

4. Work-related questions

Questions from this block appeared only to those respondents, whose previous answers confirmed that they have worked. Questioned aimed to understand whether they were working during university or not, if they work by obtained education, if university helped to get a job and so on.

5. Factors, that influenced the choice of education direction and university

This was the last block of questions identifying which factors influenced the respondent's decision-making process of university, masters and bachelor programs and other factors that determined their career path choice.

2.2. General information about respondents

Out of 240 respondents there were 29,6% of males and 70,4% of females. The age of respondents varied from 15-80 years with the mean age at the level of 26. The 87% of the sample were between 20-35 years. It is important to mention that the aim was to collect data from 20-35 years old people as the most of analysis was focused on the group of people that had recently obtained high education and started their career path. The reason is that this specific group had finished school not long time ago, was under similar circumstances regarding the admission process and was primary analyzed in the literature review chapter earlier in this paper.

City of respondents' birth was mainly Saint-Petersburg (38,4%), while only 17,5% were from Moscow and other 44,1% from other cities. About 30% of sample were the only child in the family, 50% had one sibling, 13% had two siblings and other 7% had three or more siblings. Approximately 37% of respondents identified their income as high, 43% as moderately high, a bit more than 10% as average, 7,5% as quite low and less than 2% as very low. The more detailed distribution of respondents' income is presented in the graph below:

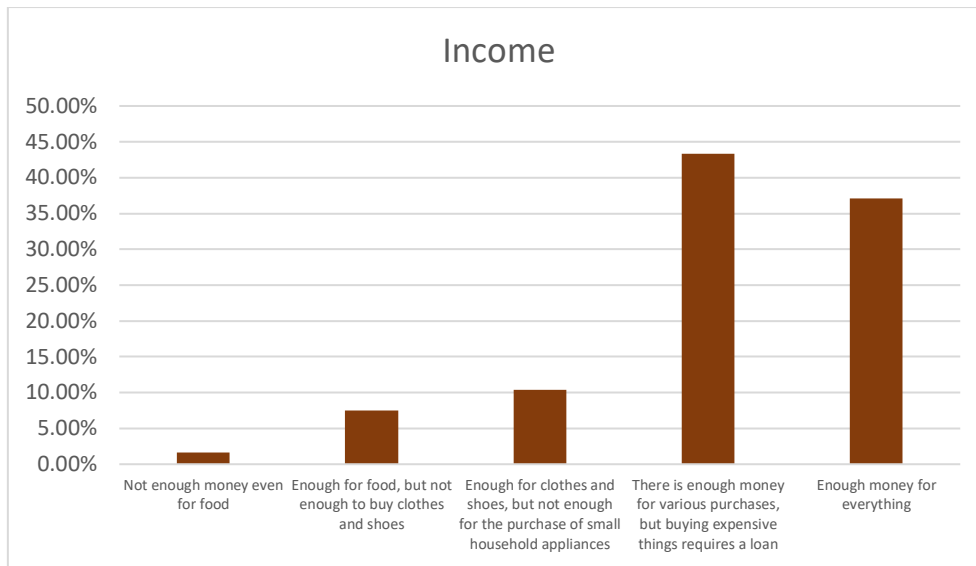


Figure 11. Income distribution of respondents

Source: compiled by the author

It can be seen from the graph that most of the respondents represent the high and moderate high-income groups. Although the share of female respondents is much bigger than the share of male respondents, this could be omitted since women nowadays have similar education and work preferences as men. Nevertheless, the following research will consider this specific and test the gender variable for significance.

2.3. Respondents' level of satisfaction with education

As mentioned above, the size of the sample is 240 people, but only 211 of them have entered the university and were devoted to analysis: 102 of whom (48,3%) were university graduates and 109 (51,7%) current university students. Out of the first group 5,9% have unfinished bachelor's degree, 70,6% have completed bachelor or specialist degree and 23,5% have obtained the bachelor and master's degree. The second group consists of current university students: 59,7% of bachelor or specialist students, 35,8% of master's students, and 4,6% of PhD students.

In addition, analysing the first group it can be revealed that master and PhD graduates have also completed the bachelor or specialist degree, while PhD graduated have completed both bachelor (specialist) and masters. This logic is also relevant for the second group of respondents who are currently enrolled in high education of masters or PhD. Although there is a group of people who dropped out of bachelor, they still can be counted in the total number of respondents, who at least entered the bachelor or specialist degree and therefore have experience

in studying in university. For further research purposes bachelor’s degree would be equated to specialist degree as they both represent the first level of high education. To sum up, 211 respondents, which is the 88% of the sample, can be analysed in terms of factors influencing the bachelor’s (specialist) degree choice, while 68 respondents (28%) of total sample can be considered while observing the master’s degree choice.

Table 5: Grouping of respondents by obtained degree

Degree	Graduates	Current students	Total number of respondents, who at least entered degree
Bachelor or specialist	78 <i>(incl. 6 unfinished)</i>	65	211
Master	20	39	68
PhD	4	5	9
Total	102	109	211

Source: compiled by the author

All mentioned above respondents were asked questions regarding the satisfaction of bachelor program, master’s program, and university choice. The possible answer options for each question were “satisfied”, “rather satisfied”, “not sure”, “rather unsatisfied” and “unsatisfied”. The results were restructured in a way that those who responded rather satisfied were attributed to “satisfied” category, while those who answered “rather unsatisfied” or “not sure” were added to “unsatisfied” group. The table below represents the results of respondents’ answers about educational direction satisfaction based on whether students have experience of only bachelor (specialist) degree or the experience of both bachelor (specialist) and master’s degree.

Table 6: Satisfaction with direction choice

	Respondents with bachelor (specialist) degree	Respondents with both bachelor (specialist) and master’s degree	
		bachelor	masters
Satisfied with direction choice	66%	79%	79%

Unsatisfied with direction choice	23%	12%	15%
Not sure	11%	9%	6%

Source: compiled by the author

It can be noticed that the level of satisfaction with the educational direction choice is higher for those respondents, who have experienced the education in both bachelor (specialist) and masters' degrees. In addition, the level of uncertainty about satisfaction is decreasing with the increase of education experience.

The satisfaction with the university choice of observed groups was also analyzed. The results are quite similar: respondents with one high education degree are less satisfied with bachelor university choice than those who have completed both bachelor (specialist) and master levels.

Table 7: Satisfaction with university choice

	Respondents with bachelor (specialist) degree	Respondents with both bachelor (specialist) and master's degree	
		bachelor	masters
Satisfied with university choice	60%	87%	79%
Unsatisfied with university choice	25%	12%	15%
Not sure	15%	1%	6%

Source: compiled by the author

Interestingly, respondents who have experience only of bachelor (specialist) degree are more satisfied with their bachelor educational direction choice (66%) than with university choice (60%), while for those who completed both degrees the result is opposite – they are more satisfied with bachelor university choice (87%) than with academic direction (79%).

To sum up, first of all, it can be seen that the level of uncertainty about satisfaction is lower for those respondents who have obtained both degrees. On the other hand, the satisfaction with educational direction choice and with university choice is higher for respondents with master's degree than for respondents with only bachelor (specialist) degree. It can be noticed that the presence of master's degree could potentially influence the satisfaction level: decrease the level

of uncertainty and increase the level of satisfaction both with educational direction choice and with university choice. This could be explained in different ways. On the one hand, master's students have something to compare with, so they are not that picky and critical to educational direction and university. On the other hand, the influence could be inverse: those who are satisfied with the bachelor's educational direction and university choice would more likely continue education and enter master's degree. However, the second option does not explain why respondents with master's degree have high satisfaction level not only with bachelor's educational direction and university, but also with masters. Therefore, the factor of having masters' degree will be analyzed in the further research.

2.4. Factors influencing career decision making of respondents

All respondents who were involved in high education were asked about factors, that influenced their decision. These questions were aimed to analyze intrinsic, extrinsic, interpersonal and information availability factors. Main factors that influenced the choice of bachelor educational direction are the following:

- Interest in educational direction / profession
- Abilities in the chosen field
- Universality of the direction (easy to change)
- Advice or choice of parents
- High future salary
- Confidence (knowledge) where to work after graduation
- Based on career plan from childhood
- Confidence where to work after graduation
- Family tradition
- Teachers' influence

Also, respondents were asked what they lacked for more conscious decision-making during studying in school. Only about 20% of respondents have answered that they had all necessary information, while other factors that influenced the wrong choice of bachelor educational direction are the following:

- Lack of specialized subjects and electives in high school
- Lack of communication with university students
- Lack of career orientation in high school
- More information about universities

In addition, respondents were surveyed whether there was enough information about bachelor programs and employment opportunities during the school. About 48,3% of respondents didn't have enough information about bachelor educational direction while studying in school, 40,3% of respondents think that they had enough information, while 11,4% are not sure. About 62% of respondents didn't have enough information about employment opportunities after graduation while studying in school, 30% of respondents think that they did and 8% are not sure. It can be concluded that there is a problem of information availability for school students regarding university education and job opportunities, which possibly can be a significant factor among others, influencing the career path choice, high education satisfaction and work in compliance with education. The further work will employ empirical analysis and reveal policy measure based on it in order to achieve the main goal of research.

2.5. Empirical research

2.5.1. The relationship between probability of satisfaction with education and career decision making factors

Based on the conducted analysis of literature and results of the questionnaire it can be concluded that school students rely on different factors while making a career decision choice. These factors vary across countries and chosen educational directions. For further analysis and in order to formulate competent hypothesis intrinsic, extrinsic, interpersonal and socio-demographic factors were outlined.

Based on the literature and the results of scientific research, a few hypotheses can be formulated:

Hypothesis 1: when the school graduate had interest in career path the odds that the student will be satisfied with the educational direction choice are higher

Intrinsic factor such as interest in the chosen educational direction was mentioned by many scientists as significant factor for being satisfied with the bachelor educational direction choice. Interest refers to the respondents' answer that when deciding on the educational direction, they were guided by the fact that the chosen career path was interesting for them. If students identified their interests and relied on it during the bachelor educational direction decision making, they are more motivated to study and able to make the conscious choice. Moreover, more than 50% of respondents in the survey mentioned that this factor influenced their decision.

Hypothesis 2: if school graduate had enough information about university programs while studying in school the odds that the student will be satisfied with educational direction choice are higher

More than 50% of respondents stated that they did not have enough information about the university programs while studying in school, which means that educational institutions do not properly communicate to school students the high education opportunities. Also, Sharif, Ahmad and Sarwar in their work in 2019 analyzed this extrinsic factor and mentioned that the lack of information negatively affects the choice of the educational direction and leads to further dissatisfaction with it.

Hypothesis 3: when the school graduate relied on parents' opinion while making a career choice the odds that the student will be satisfied with the educational direction choice are higher

Numerous of studies identified that interpersonal factors play a significant role in educational direction decision making of school graduates. Moreover, Akosah-Twumasi et al in their paper in 2018 analyzed which groups of factors (intrinsic, extrinsic, or interpersonal) are significant for school graduates' university program choice across countries. It was concluded, that for collectivistic cultures interpersonal factors such as parents and family's opinion play a significant role. As it could be assumed that Russia has a collectivistic characteristic, the interpersonal factor such as parents' influence should be analyzed.

Along with interest, information availability of educational direction and parents' opinion factors, which were mentioned above, the paper will analyze the significance of other factors from extrinsic, intrinsic, interpersonal, and socio-demographic groups. These factors include income level of respondents, educational level of mother, abilities of school graduates, confidence where to work after university graduation and if students were working by specialization in the university.

2.5.2. Research methodology

As the papers aims to analyze whether students were satisfied or unsatisfied with the educational direction choice, the logit-model was chosen for the further research. An econometric model for assessing factors of satisfaction with the chosen bachelor educational direction is presented below:

$$Y=F(\text{interest, abil, info_educ, parents, income, mothereduc, workconf, workunisp})$$

The probability of being satisfied with the educational direction can be calculated using the following formula:

$$P\{Y = 1|X\} = \frac{e^z}{1 + e^z}$$

$$\Lambda (Z) = \frac{e^z}{1 + e^z}$$

Provided that,

$$Z = \beta_0 + \beta_1 \text{interest} + \beta_2 \text{abil} + \beta_3 \text{info_educ} + \beta_4 \text{parents} + \beta_5 \text{income} + \beta_6 \text{mothereduc} + \beta_7 \text{workconf} + \beta_8 \text{workunisp}$$

It should be noticed that all these factors were identified as significant by numerous of scientists for educational direction decision making. Also, these factors represent all four discussed groups of intrinsic, extrinsic, interpersonal, and socio-demographic. Rght_choice is the binary dependent variable, which identifies the probability of being satisfied with the educational direction choice. The value is labeled “1”, when the respondent is satisfied or rather satisfied with the bachelor educational direction choice and labeled “0”, when the respondent is unsatisfied, rather unsatisfied, or not sure.

Table 8: Description of variables

Variable name	Description
Rght_choice (dependent)	“1” when respondent is satisfied with bachelor educational direction, “0” when respondent is unsatisfied
Interest	“1” when respondent had interest in chosen field, “0” when respondent didn’t have interest
abil	“1” when respondent had abilities in chosen field, “0” when respondent didn’t have abilities
Info_educ	“1” when respondent had enough information about educational direction, “0” when respondent didn’t have enough information
Parents	“1” when parents advised or chose the educational direction, “0” when parents didn’t affect the choice
Mother_educ	“1” when respondent’s mother obtained high education, “0” when respondent’s mother don’t have high education

Income	“1” when respondent’s income level is low, “2” when lower-middle, “3” middle, “4” when upper middle, “5” when high
Workconf	“1” when for respondent it is clear where to work after obtained degree, “0” when respondent it isn’t
workunisp	“1” when respondent had experience of working by specialization during university, “0” when respondent didn’t have experience of working by specialization during univercity

Source: compiled by the author

In order to conduct the empirical analysis, the descriptive statistics was investigated. The table below represents the descriptive analysis of variables.

```
. sum rght_choice interest abil info_educ parents income mothereduc workconf workunisp
```

Variable	Obs	Mean	Std. Dev.	Min	Max
rght_choice	211	.7014218	.4587227	0	1
interest	211	.5165877	.5009132	0	1
abil	211	.3696682	.4838628	0	1
info_educ	211	.4028436	.4916362	0	1
parents	211	.2701422	.4450891	0	1
income	211	4.066351	.9736311	1	5
mothereduc	211	.7440758	.4374172	0	1
workconf	211	.1469194	.3548675	0	1
workunisp	211	.3459716	.4768152	0	1

Figure 12. descriptive statistics of variables

Source: completed by the author (Stata output)

The results of descriptive analysis can be interpreted in the following way:

- 70% of respondents are satisfied with the bachelor educational direction choice
- Almost 52% of respondents chose the bachelor educational direction based on their interest, while about 48% were not guided by this parameter
- 37% of respondents chose the bachelor educational direction, because they had abilities in this field
- 40% of respondents had enough information about educational directions in universities while studying in school

- 27% of respondents stated that their choice of bachelor educational direction was influenced by parents' opinion
- 74% of respondents have mother with university degree
- Almost 15% of respondents chose the educational direction, because it was clear where they are going to work after graduation
- About 35% of respondents had an experience of working by specialization while studying in university

It can be seen that the significant share of the sample has quite high level of satisfaction with the educational direction, which could be explained by the fact that survey was conducted mostly among graduates and current students at the leading universities. The descriptive statistic above provides information on the share of respondents who have mentioned one or another factor, which was important for them while making a career choice. All these factors would be considered while building the model modifications.

2.5.3. Building a model for predicting the probability of satisfaction with educational direction choice

The next stage of the analysis was to build the prediction model modifications of the probability of being satisfied with the bachelor educational direction choice in Russia. The primary model included all variables that were describes in the previous paragraph, although the model was significant, some regressors turned out insignificant at 10% significance level. The results of the preliminary model are presented in Appendix, table 1. The logic of the final model development was the following: insignificant variables were consistently removed from preliminary model and different variations of the new model were tested. As a result of the analysis three logit models were developed, all of them are significant at the level of 1%. Also, all regressors were significant at different levels of significance (10%, 5% and 1%). Results are presented in the table below. Table includes coefficients for the corresponding parameters, while level of significance is identified by stars: “****” for 1%. “***” for 5% and “**” for 10%. Constant turned out to be significant in all three models at the 1% significance level.

Table 9: coefficients of parameters for model modifications

Variable name	Coefficients (model 1.1)	Coefficients (model 1.2)	Coefficients (model 1.3)
Interest	1.150143***	1.205523***	1.181715***
abil	1.165705***	1.035961**	1.0047**
Info_educ	1.371071***	1.470712***	1.329088***
Parents	-	-	-
Mother_educ	-	0.7531029*	0.9203729**
Income	0.4457106**	-	0.4748279***
Workconf	1.649906***	1.75136***	1.549756**
workunisp	2.03793***	2.017665***	-

Source: compiled by the author based on Stata outputs

It can be noticed that in all cases regressor “parents” was not included in the model, because it appeared insignificant for all tested modifications. The regressor was included in the table to represent that although research stated the hypothesis that interpersonal factor such as parents should be significant for educational direction choice of Russian school students, it turned out to be not significant. This could be explained by specifics of the available sample, because most of the respondents entered high ranked universities and were guided mostly by intrinsic and extrinsic factors. Therefore, the analysis cannot confirm the hypothesis 3. Also, such result is useful for policy makers and educational authorities in a way that in order to increase the satisfaction of educational direction choice the policy measures should directly address school students, but not their parents as they do not impact the satisfaction.

In order to select the best model out of three presented above the ROC-analysis was conducted. ROC (Receiver Operating Characteristic) curve is the graphical representation for showing the diagnostic ability of binary classifiers. The better is the prediction value of the model the closer is the ROC curve to the upper left corner. In other words, the model with the biggest area under the ROC curve should be selected. For the first model the value of the area under the ROC curve is 0,85, for the second model – 0,84 and for the third – 0,81. Based on the value of the area and visual analysis of the ROC curve for three models, it can be identified the model 1 has the best cutoff value for prediction. The graphs of the ROC-analysis are

presented in Appendix. Therefore, the further analysis will be on model 1, which includes the following regressors: interest, abilities, information about the educational direction, income level, confidence in work, work experience by specialization during university. The more detailed results of this model are presented below:

```

. logit rght_choice interest abil info_educ income workconf workunisp

Iteration 0:  log likelihood = -128.63716
Iteration 1:  log likelihood = -94.816286
Iteration 2:  log likelihood = -91.988238
Iteration 3:  log likelihood = -91.947811
Iteration 4:  log likelihood = -91.947805

Logistic regression              Number of obs   =      211
                                LR chi2(6)       =      73.38
                                Prob > chi2        =      0.0000
Log likelihood = -91.947805    Pseudo R2      =      0.2852

```

rght_choice	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
interest	1.150143	.3795836	3.03	0.002	.4061728	1.894113
abil	1.165705	.422352	2.76	0.006	.3379102	1.9935
info_educ	1.371071	.4103279	3.34	0.001	.5668431	2.175299
income	.4457106	.1880108	2.37	0.018	.0772162	.8142051
workconf	1.649906	.6336032	2.60	0.009	.4080669	2.891746
workunisp	2.03793	.4806856	4.24	0.000	1.095804	2.980057
_cons	-3.01724	.8480083	-3.56	0.000	-4.679306	-1.355175

Figure 13. Descriptive statistics of variables

Source: completed by the author (Stata output)

Moreover, it can be concluded, that all factors that were observed in the previous analysis have a positive impact on satisfaction with the educational direction. Therefore, the hypotheses 1 and 2 are confirmed: when students have interest in career path and if school graduate have enough information about university programs while studying in school the odds that the student will be satisfied with educational direction choice are higher.

To sum up, conducted research supported the results of observed literature and helped to identify factors, that are important for making a career choice of students. As we can see, interpersonal factors such as parents, family and teachers' influence turned out to be insignificant. Therefore, all further policy measures should be addressed to students and not their parents or family. Out of intrinsic factors interest and abilities of the students are significant, which means that if students are guided by their interests and abilities, they are more likely to be satisfied with the bachelor educational direction choice. This means that

schools should assist students in exploring and identifying their inter interests and abilities, which could be done through additional electives courses, professional orientation in high school, academic results interpretation, and trade fairs. Extrinsic significant factors are turned out to be the availability of information regarding educational direction and confidence that after graduation students can find the job, which increase the likelihood of being satisfied with high education. Considering this results, educators and government authorities should pay attention to how the information is communicated to school students. Out of the last group of socio-demographic factors income and employment by specialization during university are significant, therefore policies should also be focused on providing employability opportunities for students, which can be made at early stages of career too. Taking into account mentioned factors and introducing policies based on them, policy makers can increase the educational direction satisfaction level of citizens.

2.5.4. The relationship between probability of being employed by specialization and the satisfaction with educational direction choice

One of reasons why being satisfied with the educational direction choice is quite important is that it relates to the future career path, that graduates follow. Previously it was mentioned, that although many people in Russia obtain the high education they are not employed by specialization, which leads to the negative consequences for the country overall. Therefore, this paper also aims to analyze the relationship between the satisfaction of educational direction choice and probability of working by obtained education. To hypothesis could be formulated in the following way:

Hypothesis: when person is satisfied with the educational direction choice the odds that the person will be employed by specialization are higher

Developed for the research purposes questionnaire included questions regarding the respondents' employment and if they were working by specialization or not. Out of 211 respondents only 160 people have stated that they are currently employed. Therefore, the analysis is based on 160 observations. Respondents were asked if they are employed by obtained education. As the possible answers were "yes" or "no", the logit-model was chosen for the further analysis. The econometric model is presented below:

$$Y=F(\text{right_choice}, \text{workunisp})$$

The probability of being employed by specialization can be calculated using the following formula:

$$P\{Y = 1|X\} = \frac{e^z}{1 + e^z}$$

$$\Lambda (Z) = \frac{e^z}{1 + e^z}$$

Provided that,

$$Z = \beta_0 + \beta_1 \text{rght_chocie} + \beta_2 \text{workunisp}$$

The dependent variable is workspec, which is equal to “1”, when the respondent is currently employed by obtained high education and is “0”, when the respondent is not working by specialization. The description of variables is presented in the table below:

Table 10: Description of variables

Variable name	Description
workspec (dependent)	“1” when respondent is employed by specialization, “0” when respondent is not employed by specialization
Rght_choice	“1” when respondent is satisfied with bachelor educational direction, “0” when respondent is unsatisfied
workunisp	“1” when respondent had experience of working by specialization during university, “0” when respondent didn’t have experience of working by specialization during univercity

Source: compiled by the author

In order to conduct the empirical analysis, the descriptive statistics was investigated. The table below represents the descriptive analysis of variables.

```

sum workspec rght_choice workunisp

```

Variable	Obs	Mean	Std. Dev.	Min	Max
workspec	160	.6	.4914361	0	1
rght_choice	160	.70625	.4569089	0	1
workunisp	160	.4125	.4938299	0	1

Figure 14. Descriptive statistics of variables

Source: completed by the author (Stata output)

It can be noticed that there are 160 observations in total as not all respondents from original sample were employed. The results show that 60% of respondents are currently employed by obtained education. In addition, 70,6% of the new sample are satisfied with the educational direction choice. Also, 41% of respondents had an experience of working by specialization during university.

To complete the analysis the prediction model of the probability to be employed by specialization was built. The methodology of best model selection followed the same procedure, which was mentioned previously in this paper. During the study several model modifications were analyzed, but only one model turned out to be significant and included significant factors at the level of 1%. The results are presented in the table below:

```

. logit workspec rght_choice workunisp

Iteration 0:  log likelihood = -107.68187
Iteration 1:  log likelihood = -75.500976
Iteration 2:  log likelihood = -74.652724
Iteration 3:  log likelihood = -74.64483
Iteration 4:  log likelihood = -74.644829

Logistic regression                Number of obs   =      160
                                   LR chi2(2)      =      66.07
                                   Prob > chi2     =      0.0000
Log likelihood = -74.644829      Pseudo R2      =      0.3068

```

workspec	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
rght_choice	1.700184	.4441743	3.83	0.000	.8296188 2.57075
workunisp	2.471005	.496009	4.98	0.000	1.498845 3.443165
_cons	-1.551413	.385461	-4.02	0.000	-2.306903 -.7959238

Figure 15. Results of the econometric analysis

Source: completed by the author (Stata output)

As we can see from the table, being satisfied with the educational direction choice increases the probability of being employed by specialization, as this factor turned out to be significant. Also, those students, who have been working by specialization during university, are more likely to be employed by specialization after graduation than those, who did not work at all or worked not by specialization. These results are important for policy makers as the percentage of people employed by obtained education directly affects the city and country's development. Government should address the educational direction satisfaction level and assist students in receiving the professional experience before graduation.

To conclude, this paper provided empirical research on the factors, that influence probability of being satisfied with educational direction and being employed by specialization. It was revealed that some intrinsic, extrinsic, and socio-demographic factors can increase the odds of people to be satisfied with obtained education, while observed interpersonal factors have no effect. As a result, policy makers should ensure that school students are guided by their interests and abilities, have enough information of high education programs and employability opportunities after graduation, and have opportunity to receive the experience of working by specialization. Moreover, the probability to be employed by specialization after graduation is associated with the satisfaction of educational direction. Therefore, by increasing the level of educational direction satisfaction, government can increase the share of people employed by specialization, which increases the number of qualified employees on the market, improves the countries' technological development and influences the citizens' standard of living.

2.5. Recommendations for educational authorities

This paper has discussed factors, that influence the students' career choice. During the research, scientific studies and Russian and international statistics was analyzed. First of all, it was revealed, which factors are considered significant for educational direction choice. Secondly, it was identified that high percentage of people in Russia are not employed by specialization in comparison to international statistics, while having a relatively high percentage of citizens with high education. This fact has a negative impact on the overall country's development. Next stage of analysis was to develop the survey on the factors that influence the career choice of the university graduates. It was identified, that about 30% of respondents are not satisfied with obtained education and about 40% are not employed by specialization. To reveal factors, that influence these parameters, the empirical research was conducted. The main results are the following:

Factors that influence the probability of being satisfied with the university educational direction choice:

- Intrinsic factors: when school students choose the university based on their interests and abilities, the probability of being satisfied with educational direction is higher
- Extrinsic factors: when school students have enough information about university educational directions and know, where they can work after university graduation, the probability of being satisfied with educational direction is higher

- Socio-demographic factors: when students have the experience of working by specialization during university, the probability of being satisfied with educational direction is higher
- Interpersonal factors: family's, parents', teachers' and peers' influence factors are found to be insignificant for the probability of being satisfied with educational direction choice

Factors that influence the probability of being satisfied with the university educational direction choice:

- If respondent is satisfied with the educational direction choice the probability to be employed obtained education is higher
- If respondent has worked by specialization during university, the probability to be employed obtained education is higher

In order to increase the level of satisfaction with educational direction and share of citizens employed by specialization, public authorities should take into account revealed results and address factors that turned out to be important for observed parameters. To propose the set of policy measures for educational regulators the following recommendations were developed.

2.5.1. Recommendations for the Ministry of Education of the Russian Federation

Provide the professional orientation in high school

In most of western countries the professional orientation courses in schools are gaining popularity because they help students to navigate in the mordent world and identify, which professions are most suitable for them. The professional orientation courses should be based on the most updated information and explain the structure of the labor market in clear for school children words. First of all, professional orientation courses should provide the possible learning paths after school graduation. They should build the linkage between school subjects, university programs and employability opportunities. Secondly, they should provide the peculiarities of different professions: average salary, typical work activities, industries, needed competences, career opportunities and so on. Also, career courses should explain which educational direction should be chosen to be employed in the certain sphere. This would help schools to manage students' expectations, give job confidence and provide all necessary information about university directions, which would increase the level of educational satisfaction in the future. Moreover, the focus of students' attention could be managed based on the required specialists on labor market.

In addition, career orientation courses should include the students' testing. The professional orientation test could be based on academic results, students interests and feedback from teachers. Based on the results, schools can provide the suggested learning paths for students. This could help students to align their interests and abilities with future profession and base the choice on them. The data on results should be used by academic authorities to identify possible gaps and improve the school program. Moreover, due to the increasing popularity of online learning, such career orientation courses could be conducted online.

Provide mandatory electives and specialized subjects

Standard public-school programs do not provide the possibility of specialization in high school. Although many private schools, gymnasiums and lyceums give school students the opportunity to select and focus on subjects they are interested in, this possibility is not available for most children, especially from low-income families. In addition, the specialization is often based on the increase of certain school subject hours, while it does not provide the opportunity to immerse it the professional environment and try out real-life tools. International best practices in this area include not only the mandatory specialization in high school, but also introduce the elective programs, purchased by private providers. In Russia there are numerous of online courses providers both for children and adults. Educators should purchase and include such courses in school program, which could give the opportunity for students to try out different professions, apply their knowledge into practice, use professional tools, work in teams, and develop first projects, which could contribute to their future portfolio. This could help school students to identify their interests and abilities and improve the understanding of future professions, so school graduates can make a more informed career decisions. Also, this could be done in collaboration with online learning platforms, universities, and employers to increase the attractiveness of certain professions.

2.5.2. Recommendations for school authorities in the Russian Federation

Collaborate with universities

Universities are intermediates between schools and labor market, therefore the collaboration between schools and universities is quite important. Universities align programs based on employers needs and have the access to information, which candidates are in demand on labor market. Schools should request this information from universities in order to communicate it to school students. Educators should annually update the list of university educational directions, requirements for each program and their connection to professions. This

could be done in a form of the web recourse, where all information will be structured and can be filtered by different characteristics: set of subjects, university, average admission score, employability opportunities. Moreover, this resource could include the information not only about educational directions in Russian universities, but also in international ones, providing the information on the admission peculiarities. Such resource could significantly improve the level of students' educational directions awareness. Currently, this type of service is provided by private agencies, who act for their own benefits and whose services are not available for most of students.

Join research on future professions

Previously in this paper it was stated that the structure of the labor market is rapidly changing: new professions are emerging, while some of jobs are losing their relevance. This brings the challenge to the educational authorities as they need to adapt to the changing circumstances. In order to prepare students for the labor market, educators should understand trends and make predictions regarding the future professions. Currently many universities and private companies are doing research on this topic, but schools should be also involved in this process.

First of all, schools should provide data on current students, their interests, abilities and career goals, which should be considered in research as the opinion of next working generation influence the future too. Secondly, schools should identify challenges and gaps and provide the suggestions for the researched are. Lastly, schools should use the research results and implement it into the school program. Although the structure of labor market is changing, some competences and skills stays the same. Educators should aim to identify such skills and help students to develop them at early stages. This could help students to be more confident in future employment.

Employability opportunities for school students

Empirical study showed that when students were employed by specialization during university, the probability of students to be satisfied with the educational direction and probability to work by obtained education after graduation is higher.

Obviously, universities should assist students in gaining professional experience during university. This could be done by collaboration with private and public companies, development of join projects with students, establishment of career center, and internships.

Currently most of the leading universities are working in this direction. But this approach could be used not only by universities, but also by schools at the certain extend.

Some international practices show that schools can provide high school students with internships too (UIN). First, school could establish the career centers on the volunteer basis, which could search for employability opportunities in certain specializations after school or during the vocational time. School could collaborate with private and public sector and identify spheres where students can make their internships. Such incentive will help students to better understand the profession and give a chance to earn first money. This could be provided to best students in the relevant specialized classes on competition basis. This could not only improve the level of career awareness, but also enhance the motivation. Moreover, this could be a great support for low-income families.

On the other hand, this could be done in schools itself. Schools are similar to organizations and require management, sales, accountants, journalists, data analysts and marketing specialists. Students can take a role of these specialists and gain experience, which would also contribute to school development.

This practice could be elaborated by educational authorities, considering the experience of university, and start on the test basis with the selected schools. After the results' investigation and adjustments, this program could be integrated into the school system.

To sum up, provided recommendations aim to increase the level of satisfaction with the educational direction and share of people employed by specialization by addressing the important factors such as interests, abilities, information about educational directions, employability opportunities, and work by specialization in the university. The table below summarizes the results and provides the matrix on the influence of each recommendation on the observed factor.

Table 11: Matrix of recommendations and

	Intrinsic		Extrinsic		Socio-demographic
Recommendations	Interest	Abilities	Information about educational directions	Confidence where to work	Employability by specialization during university

Professional orientation in high school	High	High	High	High	-
Mandatory electives and specialized subjects	High	High	Moderate	Moderate	-
Collaborate with universities	Low	Low	High	High	-
Join research on future professions	Low	Low	Moderate	High	
Employability opportunities for school students	High	High	Low	High	High

Source: compiled by the author

Therefore, it can be concluded that provided recommendations could positively influence factors that turned out significant during the empirical research. Professional orientation in high school, introduction of mandatory specialized subjects and employability opportunities for school students could make them base their career choice on interests and abilities. All provided recommendations would improve the level of job confidence, so school students would know where they can work after graduation. To inform students about educational directions schools should collaborate with universities and provide career orientation courses. Lastly, providing the employability opportunity for school students could give them first experience of work by specialization, which also contributes to the level of educational satisfaction and increases the chances to be employed by specialization in the future.

LIMITATIONS

As any study, this research has its limitations and arises the opportunity to further investigation.

First of all, the issue of factors, influencing the school student's choice of the future profession is not widely covered by scientific papers. Although there were numerous studies concerning the choice of educational specialization, they were mostly focused on the specific educational direction rather than on the choice in general. Also, these studies did not identify whether respondents were satisfied with the choice. Therefore, the following paper made an assumption that factors that were revealed from the literature review as significant for the educational direction choice can also influence the satisfaction with the educational direction choice.

Second limitation is connected to the survey. The size of the sample is quite small as only 240 respondents were surveyed. Moreover, not all of them had entered university, therefore the analyzed sample consists only of 211 respondents. It is important to mention that most of the respondents were GSOM students and the questionnaire was distributed mostly among leading universities students (SPGU, HSE, NES, MIPT, MSU, MGIMO). In addition, in most of the cases respondents' answers have a subjective nature, making it impossible to verify the information. Also, during the data processing, some assumptions were made, for example: "not sure" was considered as "no"; the specialty degree was equated to bachelor's degree; those who responded that they are not working by specialization but going to do so later were considered as people who are not working by obtained education and so on. Lastly, although the author tried to state questions clearly, some phrases could have been perceived differently by different respondents.

Also, there was a limited access to some information on Russian and international statistical data regarding the government expenditures, education, and employability. Therefore, the data from 2018-2020 years was mainly used.

Lastly, the COVID affect was not analyzed during the research, while there is a significant shift to online informal courses due to the pandemic.

The further research could contain the deeper investigation of the employability by specialization, including more factors regarding the economic development, increase of online courses popularity and COVID affect. Also, the satisfaction with educational direction choice could be analyzed from the different side, considering the role of the universities.

CONCLUSION

The conducted research achieved set objectives: provided the literature review on the students' career decision making process; analyzed the Russian educational system and compared it with the international practices; developed the questionnaire and carried out the survey among university current students and graduates; conducted empirical research on factors that influence the satisfaction with the educational direction choice.

During the analysis of scientific papers, it was revealed that there are different factors influencing the educational direction choice across countries and depending on the specific educational program. It was summarized that there are four main groups of factors, influencing the career choice: intrinsic, extrinsic, interpersonal and socio-demographic. Intrinsic group of factors include interests, abilities, experiences, and career goals. Extrinsic factors consist of high future salary, job availability, job confidence, universality of profession, status, and information on career opportunities. Interpersonal factors included the opinions and influence of parents, family, teachers, school, and peers. The socio-demographic groups contained age, gender, level of income, number of siblings, mother's and father's educational level. The logic of factors selection was based on the frequency of mentioning in scientific studies and relevance of factors for Russia. These factors later served as the basis for the questionnaire development.

In order to understand the educational system, employability market structure and government policies in education, this paper conducted the comparative analysis of Russian and international practices. First output was that the Russian educational system finance by public resources at the bigger extend than in OECD countries. Secondly, it was revealed that the overall level of investments is significantly lower. In addition, less alternative financing instruments are used to cover the educational expenses, while other countries actively imply students' loans and grants.

One of the main research results were that Russia have the highest percentage of people with high education (62,1% for 25–34-year-olds), while the OECD average is only about 47%. Nevertheless, the share of people working by their specialization is quite low. In developed countries more than 60% are employed by obtained education, while in Russia it is relevant for less than 50%. Many people are doing retraining courses and bear both tangible and intangible costs. Moreover, this has a negative effect on country's development it results in lack of qualified employees and slows down the economical development.

As students are making their career choice while studying in school, the focus of the paper was mostly on school education. The peculiarity of school system in Russia is in 90% of cases it is financed by government, having only 2% of private schools. In comparison, the average percentage of private schools across developed countries is 10%. Although the percent is still quite low, it is rapidly increasing in the recent years as more private schools are emerging, addressing the gap in public school educational system. It was revealed that number of mandatory school instructional hours in Russia is relatively low in comparison to OECD average, while Russia has the longest summer break across all countries. In addition, Russian educational system is more formal, having less flexible curriculum hours and specialized subjects, while the rest of the world is actively adapting new approaches of having the school educational process closer to real professional environment.

In order to identify factors that can influence the level of high education satisfaction and compliance of the career path with obtained specialization, the empirical research was conducted. To collect the data, author developed the questionnaire based on the literature review. The survey polled 240 respondents, but only 211 entered university and made up the sample for the further analysis. The satisfaction level of respondents varied from 65%-80% based on observed group. About 70% of those who were currently employed was working by specialization. The most popular career choice factors mentioned by respondents were interests, abilities, universality of educational direction, parents' influence, high future salary, confidence where to work after graduation and availability of information about university directions. Also, about half of the respondents stated that they did not have enough information about educational directions while studying in school. About 70% of respondents mentioned that they there was a lack of information about employability opportunities.

Based on the received questionnaire results and literature review, the basic model for the empirical research was developed. After the analysis of model modification, the final model was selected. The empirical researched aimed to analyze which factors influence the probability of respondents to be satisfied with the educational direction choice. As the dependent variable was the binary one, the logit-model was selected for further analysis. The factors which turned out to be significant are the following: interest, abilities, confidence were to work, availability of information about educational direction, income and work by specialization during the university. Interestingly, although parents influence is typical for such countries as Russia, this factor turned out to be insignificant. Also, the additional model, analyzing the probability to be employed by specialization was developed. The main results are: if person is satisfied with the educational direction choice and was working by

specialization during university, the probability of being employed by specialization after graduation is higher. This all proves the fact that satisfaction level of the graduates is important and has an influence on the percent of citizens working by specialization. Therefore, policy measures should aim to enhance the level of satisfaction with educational direction choice and address factors that influence it. In order to do so, the set of recommendations for public authorities was developed. First recommendation suggested the introduction of professional orientation courses in schools as it could help students to identify their interest and abilities as well as receive more information about possible learning paths. Second recommendation was about adding the electives and specialized subjects to the mandatory school program. This could help school students to immerse in the working environment and try out different professions. This recommendation also aimed to influence interest, abilities, work confidence, and availability of information factors. Next recommendation prompted schools to collaborate with universities and develop the informational recourse where students could find all necessary information about Russian and international educational directions as well as information on admission. Also, it was recommended to conduct research jointly with other stakeholders to make predictions on future careers and common competences needed for them. This could increase the level of student's confidence in the future. Lastly, it was suggested to find opportunities for children to receive first professional experience starting from school age, where schools can provide internships and develop different programs to do so. All recommendations mentioned above address the factors, which were revealed during the empirical research, and are aimed to increase the level of high education satisfaction and compliance of the career path with obtained specialization.

As mentioned before, the empirical research stated three hypotheses:

- *Hypothesis 1: when the school graduate had interest in career path the odds that the student will be satisfied with the educational direction choice are higher*
- *Hypothesis 2: if school graduate had enough information about university programs while studying in school the odds that the student will be satisfied with educational direction choice are higher*
- *Hypothesis 3: when the school graduate relied on parents' opinion while making a career choice the odds that the student will be satisfied with the educational direction choice are higher*

As the result, the hypotheses 1 and 2 were accepted, while the hypothesis 3 was rejected. The graphs below identify the connection between recommendations for different actors, hypotheses, and factors, that turned out to be significant.

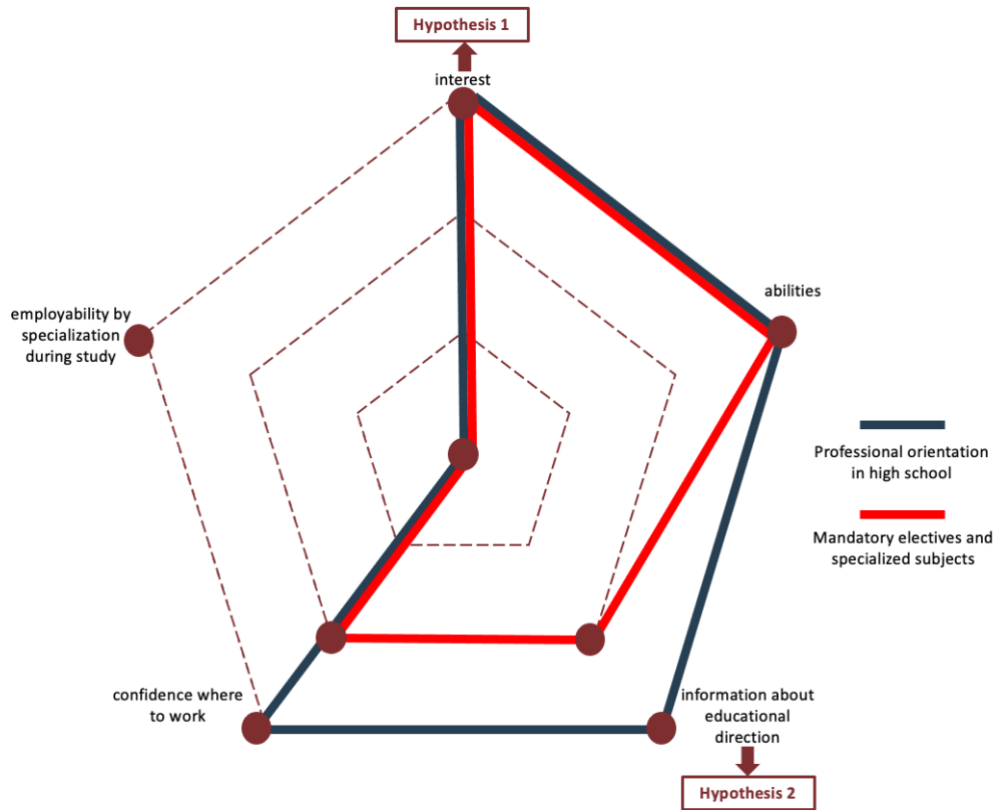


Figure 16. Recommendations for the Ministry of Education of the Russian Federation: the impact on factors

Source: completed by author

The graph above shows the level of impact (high, moderate, low) of recommendations for the Ministry of Education of the Russian Federation on the significant factors. It can be seen that both recommendations – professional orientation in high school and mandatory electives and specialized subjects have the high or moderate impact on four significant factors. Also, these recommendations cover the factors, that were stated in hypotheses 1 and 2. Moreover, both recommendations do not address the factor of being employed by specialization during the study. Lastly, the recommendation to introduce the professional orientation in high school seems to be more impactful to observed factors and therefore could contribute to the increase of probability to be satisfied with the educational direction choice to a greater extend.

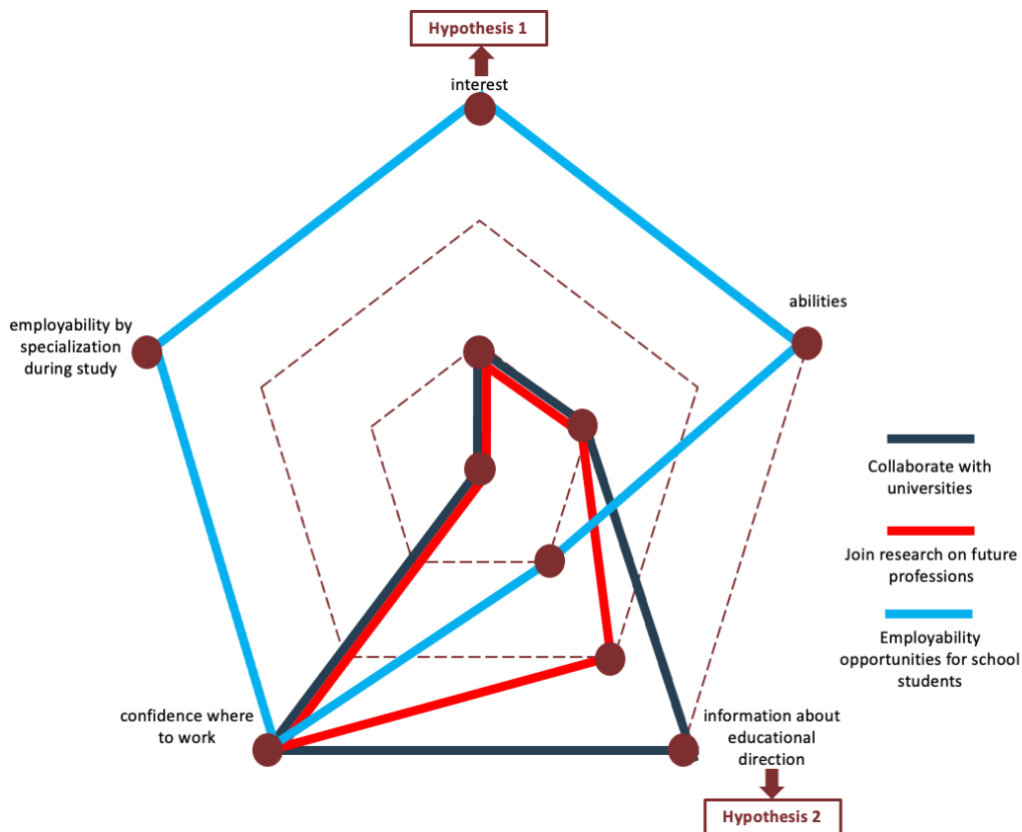


Figure 17. Recommendations for schools: the impact on factors

Source: completed by author

The graph above represents the influence of three recommendations for schools on the factors, that turned out to be significant during the empirical research. It can be noticed that such recommendations as collaboration with universities and joint research on the future professions are more focused on providing the information about educational directions and improving the job confidence. Moreover, these two recommendations do not address the factor of being employed by specialization during the study. On the other hand, last recommendation of providing employability opportunities to school students is the only one that addresses the employability by specialization during the study factor. In addition, it can be seen that this recommendation has the greatest impact on all five factors.

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APPENDIX

Appendix 1. Empirical research

```
. logit rght_choice interest abil info_educ parents income mothereduc workconf workunisp
```

```
Iteration 0: log likelihood = -128.63716
Iteration 1: log likelihood = -93.751668
Iteration 2: log likelihood = -90.756083
Iteration 3: log likelihood = -90.717236
Iteration 4: log likelihood = -90.71723
```

```
Logistic regression                Number of obs   =      211
                                   LR chi2(8)       =      75.84
                                   Prob > chi2       =      0.0000
Log likelihood = -90.71723         Pseudo R2      =      0.2948
```

rght_choice	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
interest	1.1202	.4219177	2.66	0.008	.293257	1.947144
abil	1.190996	.4289909	2.78	0.005	.3501888	2.031802
info_educ	1.406989	.417647	3.37	0.001	.588416	2.225562
parents	-.1525721	.4605207	-0.33	0.740	-1.055176	.7500319
income	.4079862	.1922822	2.12	0.034	.03112	.7848524
mothereduc	.6353526	.4188475	1.52	0.129	-.1855735	1.456279
workconf	1.693182	.6533311	2.59	0.010	.4126766	2.973688
workunisp	1.957766	.4915864	3.98	0.000	.9942744	2.921258
_cons	-3.269643	.926825	-3.53	0.000	-5.086186	-1.453099

Figure 1. Preliminary model

Source: completed by the author

```
. logit rght_choice interest abil info_educ income workconf workunisp
```

```
Iteration 0: log likelihood = -128.63716
Iteration 1: log likelihood = -94.816286
Iteration 2: log likelihood = -91.988238
Iteration 3: log likelihood = -91.947811
Iteration 4: log likelihood = -91.947805
```

```
Logistic regression                Number of obs   =      211
                                   LR chi2(6)       =      73.38
                                   Prob > chi2       =      0.0000
Log likelihood = -91.947805         Pseudo R2      =      0.2852
```

rght_choice	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
interest	1.150143	.3795836	3.03	0.002	.4061728	1.894113
abil	1.165705	.422352	2.76	0.006	.3379102	1.9935
info_educ	1.371071	.4103279	3.34	0.001	.5668431	2.175299
income	.4457106	.1880108	2.37	0.018	.0772162	.8142051
workconf	1.649906	.6336032	2.60	0.009	.4080669	2.891746
workunisp	2.03793	.4806856	4.24	0.000	1.095804	2.980057
_cons	-3.01724	.8480083	-3.56	0.000	-4.679306	-1.355175

Figure 2. Model modification 1

Source: completed by the author

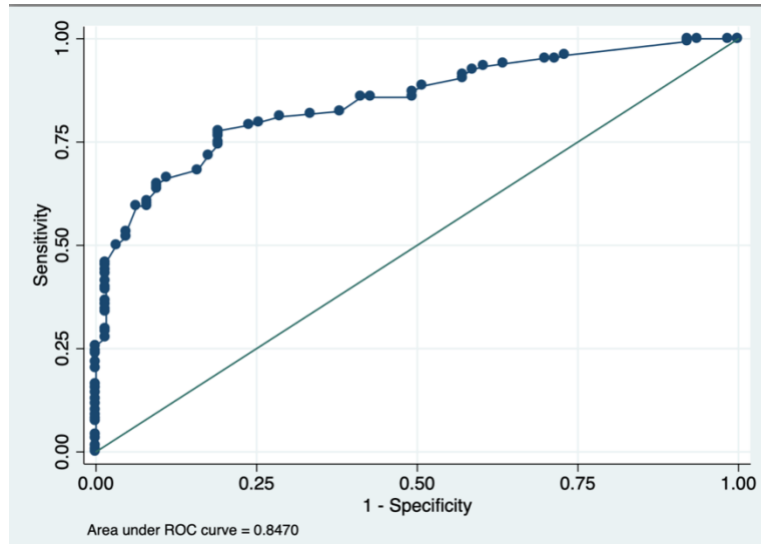


Figure 5. ROC curve, model 1
Source: completed by the author

Table 6: ROC curve, model 2

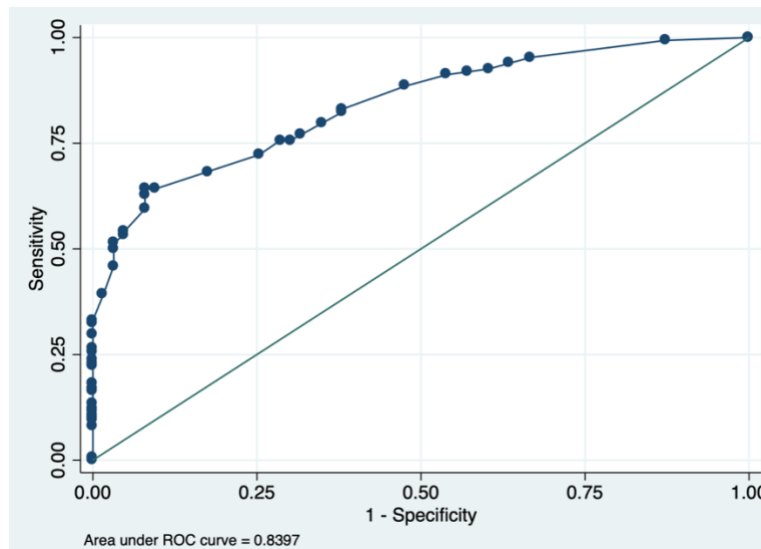


Figure 6. ROC curve, model 2
Source: completed by the author

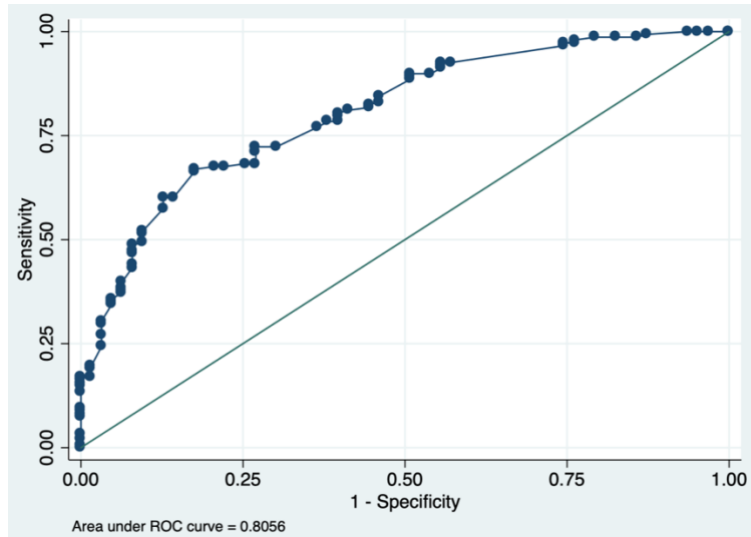


Figure 7. ROC curve, model 3
Source: completed by the author

```
. logit workspec rght_choice workunisp gender
```

```
Iteration 0: log likelihood = -107.68187
Iteration 1: log likelihood = -73.961405
Iteration 2: log likelihood = -73.119936
Iteration 3: log likelihood = -73.113247
Iteration 4: log likelihood = -73.113246
```

```
Logistic regression                Number of obs   =    160
                                   LR chi2(3)        =    69.14
                                   Prob > chi2         =    0.0000
Log likelihood = -73.113246         Pseudo R2      =    0.3210
```

workspec	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
rght_choice	1.706411	.4503146	3.79	0.000	.8238108	2.589011
workunisp	2.494696	.502322	4.97	0.000	1.510163	3.479229
gender	.7642716	.4413674	1.73	0.083	-.1007927	1.629336
_cons	-2.077486	.5090716	-4.08	0.000	-3.075248	-1.079725

Figure 8. Model 4: work by specialization
Source: completed by the author

увеличения процента людей, работающих по профессии. Анкета займет не более 10 минут. Благодарим за участие!

Блок вопросов №1:

- 1) Пожалуйста, выберите подходящий ответ:
 - a) Я учусь в школе
 - b) Я закончил(а) школу и пошел(а) работать
 - c) Я закончил(а) техникум\колледж и пошел(а) работать
 - d) Я закончил(а) техникум\колледж и поступил(а) в ВУЗ
 - e) Я закончил(а) школу и поступил(а) в ВУЗ

Если на вопрос №1 ответили «с», «d» или «e»,

- 2) Являетесь ли Вы на данный момент студентом ВУЗа?
 - a) Да
 - b) Нет

Если на вопрос №2 ответили «b»

- 3) Пожалуйста, выберите подходящий ответ:
 - a) Я не закончил(а) бакалавриат (неоконченное высшее)
 - b) Я закончил(а) бакалавриат
 - c) Я закончил(а) специалитет
 - d) Я закончил(а) бакалавриат и магистратуру
 - e) Я закончил(а) специалитет и магистратуру
 - f) Я закончил(а) бакалавриат, магистратуру, и аспирантуру
- 4) Укажите, пожалуйста, основной род Вашей деятельности
 - a) Наемный рабочий
 - b) Государственный служащий
 - c) Пенсионер
 - d) Не работаю и не ищу работу
 - e) В поиске работы
 - f) Домохозяйка (ин)
 - g) Предприниматель
 - h) Другое:

Если на вопрос №2 ответили «a»

- 5) Пожалуйста, выберите подходящий ответ:
 - a) Я обучаюсь на бакалавриате
 - b) Я обучаюсь на специалитете
 - c) Я закончил(а) бакалавриат и обучаюсь на магистратуре
 - d) Я закончил(а) специалитет и обучаюсь на магистратуре
 - e) Я закончил(а) бакалавриат и магистратуру и обучаюсь на аспирантуре

Блок вопросов №2:

- 6) Считаете ли Вы, что сделали верный выбор направления обучения на бакалавриате (специалитете)?
- a) Да
 - b) Скорее да
 - c) Затрудняюсь ответить
 - d) Скорее нет
 - e) Нет
- 7) Оправдало ли выбранное Вами направление обучения на бакалавриате (специалитете) Ваши ожидания?
- a) Да
 - b) Скорее да
 - c) Затрудняюсь ответить
 - d) Скорее нет
 - e) Нет
- 8) Считаете ли Вы, что сделали верный выбор ВУЗа для бакалавриата (специалитета)?
- a) Да
 - b) Скорее да
 - c) Затрудняюсь ответить
 - d) Скорее нет
 - e) Нет
- 9) Чего вам не хватало раньше для правильного выбора направления обучения на бакалавриате (специалитете)?
- a) Всего хватало, я располагал(а) всей необходимой информацией
 - b) Профориентации в старших классах
 - c) Больше информации о ВУЗах
 - d) Наличие специализированных предметов в школе / элективов (биохимия, генетика, маркетинг, программирование, психология и тд)
 - e) Более интересная подача предметов
 - f) более высокий уровень преподавания предметов, необходимых для поступления
 - g) Курсы для подготовки к поступлению
 - h) Специализированные кружки/ секции
 - i) Общение со студентами
 - j) Другое:
- 10) В каком городе Вы закончили (заканчиваете) бакалавриат (специалитет)?
- a) Санкт-Петербург
 - b) Москва
 - c) Другое:

Если ранее респондент ответил, что обучался на магистратуре:

11) Считаете ли Вы, что сделали верный выбор направления обучения на МАГИСТРАТУРЕ?

- a) Да
- b) Скорее да
- c) Затрудняюсь ответить
- d) Скорее нет
- e) Нет

12) Пожалуйста, укажите в каком городе Вы заканчивали (заканчиваете) МАГИСТРАТУРУ*

- a) Санкт-Петербург
- b) Москва
- c) Другое:

13) Укажите, работали ли Вы во время обучения в ВУЗе?

- a) Да, но не по специальности
- b) Да, работал по специальности бакалавриата
- c) Да, работал по специальности магистратуры
- d) Нет

Блок вопросов №3:

14) Работаете ли Вы по специальности?

- a) Да, по специальности бакалавриата/специалитета
- b) Да, по специальности магистратуры
- c) Работаю не по специальности, но собираюсь
- d) Работаю не по специальности, и не собираюсь
- e) Затрудняюсь ответить
- f) Я пока не работаю

Если на вопрос №14 респондент ответил «а», «b», «с» или «d»

15) В каком городе Вы работаете?

- a) Санкт-Петербург
- b) Москва
- c) Другое:

16) Считаете ли вы, что Ваше высшее образование помогло Вам при трудоустройстве?

- a) Да, помог бакалавриат (специалитет)
- b) да, помогла магистратура
- c) да, помогла аспирантура
- d) Нет

17) Что именно Вам помогло?

- a) Практика

- b) Преподаватели
- c) Знакомства из ВУЗа
- d) Карьерный центр ВУЗа
- e) Навыки, приобретенные во время обучения
- f) Внеучебная деятельность/мероприятия в ВУЗе
- g) Другое:

Блок вопросов №4:

18) Пожалуйста, укажите, почему Вы решили учиться ВУЗе? Можно выбрать до 3-х вариантов ответа

- a) требование родителей
- b) нежелание идти в армию
- c) нежелание идти работать
- d) «так делают все»/ все мои друзья поступают в ВУЗы
- e) Повысить уровень образования и получить знания
- f) Возможность получения престижной работы
- g) желание ощутить на себе опыт студенчества
- h) возможность получения интересной специальности
- i) получение высшего образования необходимо
- j) возможность переехать в другой город
- k) расширение круга знакомств (networking)
- l) Другое:

19) Пожалуйста, укажите, что повлияло на выбор направления обучения на бакалавриате (специалитете)?

- a) выбор или совет родителей
- b) пример родителей / семейная традиция
- c) за компанию с друзьями
- d) будет высокий заработок
- e) универсальность направления – легко сменить специализацию
- f) мне интересна эта профессия / специальность
- g) у меня есть способности в данной области
- h) это была моя цель с детства, соответствие личному карьерному плану
- i) знаю, куда можно дальше пойти работать
- j) будет легко найти работу
- k) преподаватель, заинтересовавший данной областью знания
- l) специализация в школе (обучение в профильном классе, уклон школы)
- m) кружки, дополнительное образование
- n) Другое:

20) Пожалуйста, укажите, что повлияло на выбор УЧЕБНОГО ЗАВЕДЕНИЯ для бакалавриата, в котором Вы продолжили/продолжаете получение образования?

- a) Рекомендация педагогов
- b) Советы друзей
- c) Советы родителей

- d) Рейтинг ВУЗов
- e) Проходной балл, позволяющий поступить на бюджет
- f) Проходной балл, позволяющий поступить на платное
- g) Профессиональная ориентация/ рекомендация специалиста
- h) Местоположение (недалеко от дома)
- i) Местоположение (другой город/страна)
- j) были льготы при поступлении
- k) было целевое направление
- l) Другое:

21) Во время учебы в школе у меня была полная информация о выбранном направлении обучения на бакалавриате

- a) Да
- b) Скорее да
- c) Затрудняюсь ответить
- d) Скорее нет
- e) Нет

22) Во время учебы в школе у меня была полная информация о возможностях трудоустройства после окончания ВУЗа

- a) Да
- b) Скорее да
- c) Затрудняюсь ответить
- d) Скорее нет
- e) Нет

23) Укажите, пожалуйста, Ваше направление обучения на бакалавриате

24) Укажите, пожалуйста, Ваш ВУЗ на бакалавриате

25) Пожалуйста, укажите страну вашего рождения

- a) Россия
- b) Другое:

26) Пожалуйста, укажите город вашего рождения

- a) Санкт-Петербург
- b) Москва
- c) Другое:

27) В каком городе вы закончили школу?

- a) Санкт-Петербург
- b) Москва
- c) Другое:

- 28) Если Вы выбрали другой город для получения высшего образования, пожалуйста, укажите причину:
- a) В моем родном городе отсутствует ВУЗ, имеющий необходимое мне направление образования/специальность
 - b) Уровень ВУЗов в моем родном городе не соответствует моим ожиданиям
 - c) Желание переехать
 - d) Другое:

Блок вопросов №5:

- 29) Пожалуйста, укажите свой возраст
- _____

- 30) Пожалуйста, укажите Ваш пол

- a) Мужской
- b) Женский

- 31) Пожалуйста, укажите есть ли у Вас родные СТАРШИЕ братья или сестры? Если да, укажите их количество

- a) Нет
- b) Да, 1 старший брат/сестра
- c) Да, 2 старших брата/сестры
- d) Да, 3 старших брата/сестры
- e) Да, более 4 старших братьев/сестер

- 32) Пожалуйста, укажите есть ли у Вас родные МЛАДШИЕ братья или сестры? Если да, укажите их количество

- a) Нет
- b) Да, 1 младший брат/сестра
- c) Да, 2 младших брата/сестры
- d) Да, 3 младших брата/сестры
- e) Да, более 3 младших брата/сестер

- 33) Опишите, пожалуйста, свой уровень дохода?

- a) Не хватает денег даже на еду
- b) Хватает на еду, но не хватает на покупку одежды и обуви
- c) Хватает на одежду и обувь, но не хватает на покупку мелкой бытовой техники
- d) Хватает денег на различные покупки, но покупка дорогих вещей (компьютера, стиральной машины, холодильника) требует кредита или накоплений
- e) Хватает денег на все

- 34) Укажите, пожалуйста, уровень образования Вашего ОТЦА

- a) закончил(а) школу
- b) закончил(а) техникум\колледж
- c) закончил(а) бакалавриат
- d) закончил(а) специалитет

- e) закончил(а) бакалавриат и магистратуру
- f) закончил(а) специалитет и магистратуру
- g) закончил(а) бакалавриат, магистратуру, и аспирантуру
- h) не готов(а) ответить на этот вопрос

35) Укажите, пожалуйста, уровень образования Вашей МАТЕРИ

- a) закончил(а) школу
- b) закончил(а) техникум\колледж
- c) закончил(а) бакалавриат
- d) закончил(а) специалитет
- e) закончил(а) бакалавриат и магистратуру
- f) закончил(а) специалитет и магистратуру
- g) закончил(а) бакалавриат, магистратуру, и аспирантуру
- h) не готов(а) ответить на этот вопрос